

**Methods to Market Mario:  
An Analysis of American and Japanese Preference for Control in  
Video Games**

BY

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## ABSTRACT

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Video game developers and journalists on both sides of the Pacific agree that the preferences of Japanese and American video gamers are quite different. Their consensus is that Americans prefer a relatively higher level of control in most aspects of their video games, compared to the Japanese. This difference is largely attributed to differences in culture. This study compares American and Japanese on three factors: 1) their desire to control aspects of a video game, 2) their tendency to avoid ambiguous or uncertain situations in their everyday lives,<sup>1</sup> and 3) their desire to have control over their everyday lives.<sup>2</sup>

The results show that Americans desire a relatively higher level of control in their everyday lives, but prefer a relatively *lower* level of control in their video games compared to their Japanese counterparts. This difference is most pronounced in low-usage video gamers and becomes weaker as users play games more frequently. There was no direct relationship found between one's tendency to avoid uncertain situations in one's life and the level of control that one desired in video games, which contradicts the arguments of many industry developers. Lastly, the level of video game control desired was negatively related to the level of control desired in everyday life.

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<sup>1</sup> Geert Hofstede, *Culture's Consequences: second edition*, (London: Sage Publications, 2001).

<sup>2</sup> Jerry M. Burger, *Desire for Control: Personality, Social, and Clinical Perspectives*, (New York: Plenum Press, 1992).

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Successfully conducting a study of this magnitude as a master's student would not have been possible without the assistance of many, many generous and enthusiastic individuals. I would first like to thank my thesis advisor and committee chair, Professor James Lemieux, whose close guidance and sound judgment provided me with new insights, new skills, and a heightened understand of quantitative analysis, thank you. I also would like to thank my committee chair, Professor William Tsutsui, whose enthusiasm and encouragement strengthened my resolve that unconventional, interdisciplinary studies such as this one are not only possible, but can also offer value to multiple academic fields. Finally, thank you to Professor Margret Childs for sitting on my thesis committee and providing meaningful feedback on this paper.

I must also give special thanks to Erika Hirano, who assisted me in the Japanese translation of this study's survey. Likewise, I would like to thank my mother, father, Kris Hausback, and many, many others who happily discussed this topic with me time and time again, which allowed me to refine and improve many aspects of this study.

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## Introduction

The future of firms in the United States video game industry appears to be promising. The U.S. is the single largest market for video games, generating \$9.5 billion in sales in 2007.<sup>3</sup> Annual growth in this industry exceeded 17% from 2003 to 2007, which is more than triple the growth that the U.S. economy as a whole experienced during the same period.<sup>4</sup> Globally, the video game market is expected to be worth \$48.9 billion by 2011.<sup>5</sup> While there are prospects for growth in the video game industry as a whole, the U.S. market will only make up one-fourth of the predicted \$48.9-billion video game market.<sup>6</sup> U.S. developers looking to increase global market share must be able to successfully meet the needs of gamers from all around the world. Estimated to reach a worth of \$18.8 billion by 2011, the largest geographic segment in the industry will continue to be Asia Pacific.<sup>7</sup> Naturally, a firm's success in fulfilling gamers' needs include how well it is able to understand the video gaming context, preferred video gaming consoles, and preferred video game attributes of the target consumer. Regrettably, there is evidence that suggests that U.S. developers are unable to successfully fulfill consumers' needs in this region.

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<sup>3</sup> Sales and Genre Data found at <http://www.theesa.com/facts/salesandgenre.asp> , accessed (November 14, 2008).

<sup>4</sup> Entertainment Software Association, "Video Games in the 21st Century: Economic Contributions of the U.S. Entertainment Software Industry," <http://www.theesa.com/facts/econdata.asp> , (accessed November 14, 2008).

<sup>5</sup> Reuters, "Video-game sales overtaking music," (accessed June 26, 2007), <http://articles.moneycentral.msn.com/Investing/Extra/VideoGameSalesOvertakingMusic.aspx>, (accessed November 14, 2008).

<sup>6</sup> Ibid.

<sup>7</sup> Ibid.

With a value of \$6.3 billion in 2007, Japan is the second largest video game market in the world.<sup>8</sup> Sales figures suggest that U.S. publishers have failed to gain a significant presence in this market. For example, of the top-ten software titles sold in Japan during 2007, not a single title on the list was made by an American-owned publisher.<sup>9</sup> A list of the top-ten games by sales in Japan is found in Figure 1.1.

Figure 1.1

Best-selling video games of 2007 in Japan			
Rank	Title	Console	Units Sold
1	Wii Sports	Wii	1,911,520
2	Monster Hunter	PSP	1,489,898
3	Wii Play	Wii	1,487,484
4	Pokemon Mystery Dungeon	NDS	1,256,516
5	Mario Party DS	NDS	1,232,644
6	New Super Mario Bros.	NDS	1,176,939
7	Pokemon Diamond and Pearl	NDS	1,094,389
8	Mario Party 8	Wii	1,053,934
9	Dragon Quest IV	NDS	1,052,827
10	Brain Age 2: More Training in Minutes a Day!	NDS	1,033,933

Figures found from: [http://en.wikipedia.org/wiki/2007\\_in\\_video\\_gaming](http://en.wikipedia.org/wiki/2007_in_video_gaming), (accessed on November 25, 2008).

Sales figures for hardware in Japan are even bleaker. Microsoft's Xbox 360, the only American-made gaming console currently available, has sold a scarce 786,021 units in Japan since its release in December of 2005.<sup>10</sup> This is in stark contrast to Sony's PlayStation 3 and Nintendo's Wii, which have sold 2.4 million and 6.9 million units, respectively, since their release in late 2006. In fact, according to a former marketing executive, Microsoft has come to regard the Japanese market, despite its number-two position, as a "lost cause" and has decided to focus its

<sup>8</sup> Yuri Kageyama, "Japanese Video Game Sales Rose to Record High in 2007," *International Herald Tribune*, January 9, 2008, <http://www.ihf.com/articles/2008/01/09/technology/game.php> (accessed 11/16/2008).

<sup>9</sup> Please refer to Appendix 1 for a list of the top-ten games by sales in Japan for 2007.

<sup>10</sup> Sales figures found from <http://vgchartz.com/>, (accessed November 14, 2008).

resources on developing the European market.<sup>11</sup> This sales data suggests that U.S. firms in the entertainment software industry have been largely unsuccessful in meeting the needs of Japanese gamers. If their performance in Japan is an indicator of how they will fare in the larger Asia Pacific market, U.S. entertainment software developers and publishers should be very concerned.

This study assists U.S. and Japanese publishers in better understanding the needs of American and Japanese video gamers by comparing the level of in-game control that gamers prefer in each market. This study measures control in a video game using the following four factors: 1) control over the character's movement and speech, 2) control over character design, 3) control over how the character is viewed, and 4) control over when and how the story unfolds. Geert Hofstede's Uncertainty Avoidance<sup>12</sup> and Jerry Burger's Desire for Control<sup>13</sup> scales were used to determine if statistically significant differences in the above factors were related to aspects of culture. This study hopes to provide value to video game developers and marketers when making control-related decisions about their games by explaining the relationship between these two aspects of culture and the four areas of video game control outlined above.

Chapter one briefly explains theories and concepts relevant to this study.

Chapter two discusses the methodology used to gather and analyze data for this study.

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<sup>11</sup> Personal interview with anonymous source on February 3, 2008

<sup>12</sup> Hofstede, *Culture's Consequences*.

<sup>13</sup> Burger, *Desire for Control*.



Chapter three discusses the results found, and chapter four makes some suggestions for future research.

## **Literature Review**

Understanding the relationship between desire for in-game control and culture is not only a business issue with potentially lucrative implications, but it also raises significant issues for those in the social sciences. Video games and culture have long been the topic of academic research, and have been analyzed from a myriad of perspectives. Most of these perspectives can be categorized into two groups: normative research and descriptive research.

The first perspective stresses the effects video games have on society and either support or denounce their use. Normative arguments like this are the most prominent in academia. Arguments that identify negative effects are usually based on Albert Bandura's social learning theory. Bandura's model suggests that humans learn by observing models and then imitating their behavior.<sup>14</sup> For example, a study conducted by Craig Anderson and Karen Dill found that playing violent video games increased the user's short-term and long-term aggressive behavior.<sup>15</sup> There are also normative arguments that emphasize positive effects of playing video games. For instance, Mitch Wade, an information consultant to companies like Google, found that those who frequently played video games during childhood tended to perform certain business tasks, such as performing "team play" and "careful risk-taking,"

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<sup>14</sup> A. Bandura, D. Ross, and S.A. Ross, "Transmission of Aggression through Imitation of Aggressive Models" *Journal of Abnormal Psychology* 63.3 (1961): 575-582.

<sup>15</sup> Craig Anderson and Karen Dill, "Video Games and Aggressive Thoughts, Feelings, and Behavior in the Laboratory and in Life," *Journal of Personality and Social Psychology* (2000): 772-790.

better than those who did not.<sup>16</sup> My study makes no judgment about the role video games should have in society. It is more descriptive in nature.

One branch in the descriptive research addresses the cultural meanings of video game characters and the cultural significance of the recurring themes found in video games. The first video game character to become a pop-culture icon was *Pac-man*. Namco soon realized that it could increase profits by licensing the character to other companies. *Pac-man* lunch boxes and *Pac-man* dolls lined retail shelves; he appeared on the cover of *Time* magazine; and even had a hit song written about him.<sup>17</sup> Similarly, a study that rates the popularity of famous people found that Nintendo's Mario had better recognition among American children in 1990 than Disney's Mickey Mouse.<sup>18</sup> Birgit Richard and Jutta Zaremba argue that virtual characters like *Pac-man* and Mario are so prevalent in our society that video game characters and human pop-icons have become the same product of consumption.<sup>19</sup> Richard and Zaremba illustrate by comparing *Tomb Raider*'s Lara Croft and famous singer, Madonna.

[Madonna and Lara Croft construct their] image or the users create and modify the pictorial supply in other media forms, corresponding to the wishes and needs of users and fans....[both] are comparable on the level that they represent different levels on the scale of virtual models of femininity.<sup>20</sup>

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<sup>16</sup> George Lewis, "Researchers tout positive effects of video games: gamers get high marks for problem-solving, careful risk-taking," May 19, 2005, <http://www.msnbc.msn.com/id/7912743/>, (accessed November 16, 2008).

<sup>17</sup> Steven Kent, *The Ultimate History of Video Games*, (New York: Three Rivers Press, 2001) 143.

<sup>18</sup> David Sheff, *Game Over: How Nintendo Conquered the World* (New York: Vintage Books, 1993), 9.

<sup>19</sup> Birgit Richard and Jutta Zaremba, "Gaming with GRRLS: Looking for Sheroes in Computer Games" in *Handbook of Computer Game Studies*, ed. Joost Raessens and Jeffrey Goldstein, 283, (Cambridge:MIT Press, 2005).

<sup>20</sup> Ibid.

The relationship between culture and video games is also explored by analyzing the recurring themes found in video games. For example, Rebecca Tews looks at the overall themes found in video games and argues that these themes are a result of our culture. She states:

games themselves have become an art form containing the cultural archetypes of all human knowledge. Because these themes connect with the innermost sense of self and the world, they perpetuate a distinctive culture and interpretation of reality....<sup>21</sup>

The game *Frogger* is a game where the user tries to safely guide a frog from one side of a busy freeway to the other. Tews suggests that this theme "emphasize[s] [the] survival of the species against formidable odds."<sup>22</sup> Clearly, those who analyze video games from this perspective do so by looking at the characters and themes found in them, and exploring their relationship with our cultural archetypes.

Erik Eickhorst's discussion about Japanese game centers exemplifies the descriptive research that focuses on video games as conduits to social interaction. In his analysis of Japanese video game arcades Eickhorst suggests that the intimidation video game *otaku*, "nerds" or "maniacs," experience in everyday social interaction is significantly lower when they meet other *otaku* who share the same passion for technology and games.<sup>23</sup> The gathering of *otaku* at game centers in Japan is an example of an offline community. That is, *otaku* can use game centers to create face-to-face communities based on video games. An online (virtual) community is defined by Howard Rheingold as "social aggregations that emerge from the Net when enough

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<sup>21</sup> Rebecca R. Tews, "Archetypes on Acid" in *The Medium of the Video Game*, ed. Mark J. P. Wolf, 180, (Austin: University of Texas Press, 2001).

<sup>22</sup> Ibid. 178.

<sup>23</sup> Erik Eickhorst, "Game Centers: Game centers: A historical and cultural analysis of Japan's video amusement establishments," (Master's Thesis, University of Kansas, 2006) 80-81.

people carry on public discussion long enough, with sufficient human feeling, to form webs of personal relationships in cyberspace.”<sup>24</sup> This occurs as a direct result of playing a video game, such as user-created guilds in a massive multiplayer online game like World of Warcraft. It also occurs when users create virtual spaces outside of the immediate game, such as online forums or websites dedicated to game strategy.

This study extends these perspectives by adding an additional component. In trying to determine if certain aspects of culture are related to one’s desired level of control in video games, this study analyzes how culture influences the *consumption* of video games. Similarly, it offers business leaders in the entertainment software industry new insights into the Japanese market. These insights could assist in creating software that maximizes the likelihood of success in the American and Japanese markets. This multidisciplinary study aims to provide new, applicable information for business leaders and those studying video games alike. The remainder of this chapter outlines the framework used to analyze video games, discusses customary beliefs regarding Japanese and American video game preferences, and explicitly states this study's hypotheses.

### *Framework*

There are many motives for playing video games, and there are an equally large number of video game interfaces, mechanics and concepts. Scholars have identified some general things that users expect in video games. Sonia Livingston, for example, suggests that video gamers generally have three expectations when they

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<sup>24</sup> Quoted in Martin Hand and Karenza Moore, “Community, identity and digital games” in *Understanding Digital Games*, ed. Jason Rutter and Jo Bryce (London: Sage Publications, 2006) 171.

play: to have a challenge, to have freedom, and to have a degree of control.<sup>25</sup> This framework is relatively vague since video games provide these three elements in a variety of ways and at differing levels. For example, Atari's Pong is a multiplayer game that allows users to compete against other human players, allows for control of the vertical movement of the on-screen, digital paddles, and the angle of the ball in different directions. It is quite different from Nintendo's Super Mario Brothers. Super Mario Brothers is essentially a single-player game that allows users to control the main character's horizontal and vertical movement, traverse multiple worlds, and defeat a wide array of monsters. Despite their obvious differences, both titles were reasonably successful. Atari, for example, sold 10,000 units and earned \$3.2 million within the first year of Pong's release.<sup>26</sup> Similarly, Nintendo has sold over 40 million copies of Super Mario Brothers worldwide since its release in 1985.<sup>27</sup> The concepts of story, game, control and agency help differentiate how Pong and Super Mario Brothers successfully met the three expectations of gamers.

Janet Murray constructs a visual representation of how the elements of game and story interact in her article "From Game-story to Cyberdrama," which has been reproduced in Figure 1.2 below.<sup>28</sup> Murray argues that the element of story in its

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<sup>25</sup> Sonia Livingston, *Young People and New Media: Childhood and the Changing Media Environment* (London: Sage, 2002) 16.

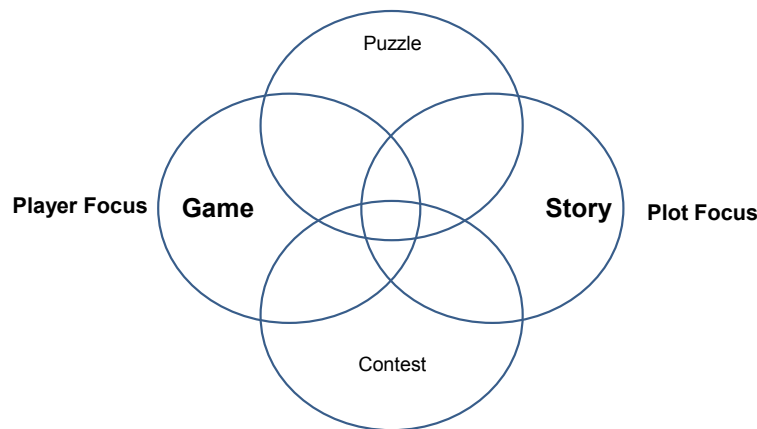
<sup>26</sup> Steve Fulton, "The History of Atari: 1971-1977," November 6, 2007, [http://www.gamasutra.com/view/feature/2000/the\\_history\\_of\\_atari\\_19711977.php](http://www.gamasutra.com/view/feature/2000/the_history_of_atari_19711977.php), (accessed on February 26, 2009).

<sup>27</sup> Sales figures found from <http://vgchartz.com/games/game.php?id=6455&region=All>, (accessed February 26, 2009).

<sup>28</sup> One may notice that Murray's diagram also includes the elements of puzzle and contest. These two elements are not directly related to this study and will not be discussed in-depth. Murray addresses

purest form puts relatively more importance on the plot, and is less concerned about the freedom of the player.<sup>29</sup> The element of game aims to provide a high level of freedom and interaction to the player. Both are equally important for a video game to offer an "ideal" level of challenge, freedom and control. Although Figure 1.2 shows game and story as separate elements, Murray warns that these elements actually merge together in video game media.<sup>30</sup>

**Figure 1.2**



Graph as found in Janet Murray's "From Game-Story to Cyberdrama" p.7

For example, Pong does not have a story, but contains elements of a story by creating a contest between an antagonist and protagonist (both human players) and producing a distinct winner and loser. Murray suggests that game and story should be thought of as "matters of degree" rather than "rigidly established" building blocks.<sup>31</sup> When

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both as two elements that are shared by both games and stories. For a more in-depth explanation of puzzle and contest, please refer to page 2 of Murray's article.

<sup>29</sup> Janet Murray, "From Game-Story to Cyberdrama," in *First Person: New Media as Story, Performance, and Game*, ed. Noah Wardrip-Fruin and Pat Harrigan (Cambridge: MIT Press, 2006), 9.

<sup>30</sup> Ibid.

<sup>31</sup> Ibid.

the elements of game and story are balanced in a video game the user achieves a heightened sense of immersion in the game's plot and communes with the game's interface. This “oneness” that occurs between the player and the software's game and story elements is also known as *agency*.

The game-story relationship is not mutually exclusive, and an imbalance in either element can limit the degree to which a video game brings its user into a state of agency. Michael Mateas uses the Aristotelian theory of drama to better explain agency in video games.<sup>32</sup> He explains that agency is comprised of formal and material constraints. A formal constraint refers to the motivation of a player that comes from the plot. Material constraint refers to the player's motivation that arises from interacting with the objects of a video game. Hence, all available actions in a video game are essentially material constraints. These include the options in a character's speech and movement, the objects that a player can interact with, or the character's own thoughts and inner monologue. All of these material constraints exist within the confines of the overarching plot, and serve to assist the player when making in-game decisions. Mateas, like Murray, argues that striking a balance between a video game's formal and material constraints are essential for the user to experience agency.

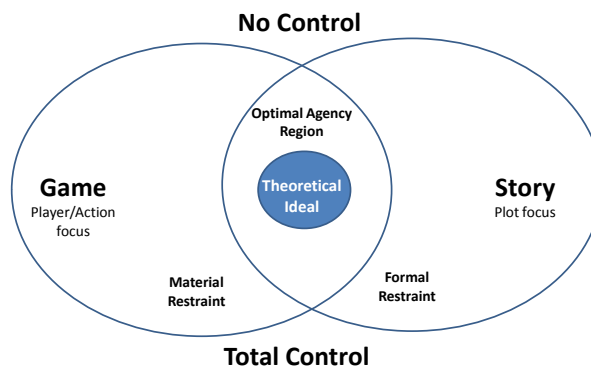
Mateas' discussion of formal and material constraints further elucidates Murray's concepts of game and story. The element of story in a video game is

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<sup>32</sup> Michael Mateas, “A Preliminary Poetics for Interactive Drama and Games” in *FirstPerson: New Media as story, performance, and game*, ed. Noah Wardrip-Fruin and Pat Harrigan, 19-32 (Cambridge: MIT Press, 2004).

similar to a formal constraint by giving the player insight into the laws and motivations guiding the virtual world. The aspect of game is also understood in terms of the options that a game offers its user (material constraint). By giving more options to a user, the developer of a game gives them a higher level of potential control within the video game. Naturally, a video game confines the user to a world defined by the developer. However, by adding options the developer allows the user to make more decisions and affect more aspects of the game, thereby giving the user a relatively higher level of “control” over the outcome of the game. Therefore, agency occurs when there is an acceptable level of game control and story control given to the user. The theoretical relationship between the elements of game, story and control is illustrated below by modifying Murray’s original graph.

Figure 1.3



While it is difficult to establish the upper and lower limits that constitute an "acceptable" amount of formal or material constraint, it is clear that these boundaries do, in fact, exist. Mateas elaborates when he explains:

Many puzzle-based adventures suffer from an imbalance of providing more material affordances than formal affordances. This results in the feeling of having



many things to do...without having any sense of why any one action would be preferable to another...this leaves the player in the position of randomly wandering about trying strange juxtapositions of objects. This distracts from the sense of agency....<sup>33</sup>

Mateas does not provide a quantifiable, ideal amount of constraints. Rather, he argues that having too many options (material constraint) will begin to frustrate the player, leaving them confused about what they should do when confronted with a problem. It is not unreasonable to assume that a similar level of aggravation can occur by not having enough options. Giving users too few or too many options within the element of game can prevent them from reaching a state of agency while playing the game. Failing to reach this ideal increases the chances that a player will become disengaged with the video game, either because it lacks an acceptable level of interactivity and control or because it has an overwhelmingly large number of options.

Andrew Glassner, a consultant in the interactive fiction industry, argues that it is equally important for video games to provide an appropriate level of control within the element of story. If a video game does not give the user any sort of control over the story, Glassner argues, the user would be unable to achieve his dream of "being 'part' of the unfolding tale."<sup>34</sup> However, he believes that it is equally disastrous for a user to be given too much control over the storyline:

The problem with giving the audience control of a story is that they will often, quite reasonably, act to reduce tension and avoid conflicts. But tension and conflict are at

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<sup>33</sup> Ibid. 27.

<sup>34</sup> Andrew Glassner, *Interactive Storytelling: Techniques for 21st Century Fiction*, (Canada: A K Peters, 2004) 18.

the heart of great stories. Without these qualities a story has no dramatic pressure. Things may happen, but they have no emotional force.<sup>35</sup>

Thus, the control-related dilemma that exists in the element of game also exists in the element of story. Provide users with too much control over the story and the plot will fail to reach the level of conflict necessary to bring them into a state of agency. Fail to give users any control over the story and they will become less engaged, rendering the game indistinguishable from other, relatively "passive" forms of media like television and movies. Hence, there exists an optimal level of control for video games.

Referring back to figure 1.3, the optimal agency region can be defined as the area where control is balanced with the elements of game and story. Video games with an optimal level of agency give users a level of manipulation that allows them to exert enough control to feel engaged, and simultaneously provide a level of constraint that keeps them at a heightened emotional and immersive state. While it may be advantageous to formulaically define the “ideal” levels of each element through quantitative analysis, such a formula is not necessary to determine if a game brings the user into a state of agency. Users intuitively recognize if a game succeeds or fails to bring them into a state of agency when they play.

This framework can be used to analyze Nintendo's Donkey Kong, which was one of the first games to include a full narrative. Donkey Kong was originally released as an arcade game in 1981. It is a game where the main character, *jumpman* (aka: Mario), tries to capture his escaped ape, which has kidnapped his girlfriend.

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<sup>35</sup> Ibid.

The plot is made clear to the user at the beginning of the game when Donkey Kong, the giant ape, is shown carrying *jumpman's* girlfriend to the top of a halfway constructed building. With this short introduction the game provides the necessary formal constraint to successfully bring the user into its virtual world and illustrate *jumpman's* motivation for climbing the structure. The game Donkey Kong also gives the user a level of control, albeit limited, over the story. The user completes the first stage by safely navigating *jumpman* to the top of the structure. The user completes the second stage by removing the virtual rivets from the structure, causing the giant ape to fall onto his head. By completing the two stages, a user is able to develop the story and bring it to an end by uniting *jumpman* with his girlfriend. The game also gives users a level of control over some of the game elements. For example, users are given the ability to control *jumpman's* walking and jumping movements; indeed there are a number of objects with which the user can interact, such as the barrels that Donkey Kong launches down the virtual girders, the ladders used to escape the barrels, as well as the barrel-smashing hammers.<sup>36</sup>

Donkey Kong was wildly popular as an arcade game, and 1.13 million copies of the game were sold for Nintendo's Home Entertainment System.<sup>37</sup> Its success may be due in part to the fact that it simultaneously provides users with an acceptable mix of game and story elements as well as an appropriate level of control over each. By putting the user in a state of agency, Donkey Kong increases the amount of time a

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<sup>36</sup> For more information about how Control was an essential aspect of Donkey Kong, please refer to Chris Kohler, *Power-Up: How Japanese Video Games Gave the World and Extra Life*, (Indianapolis: Brady Games, 2005).

<sup>37</sup> Sales figures found from <http://vgchartz.com/games/game.php?id=6225&region=All>, (accessed November 25, 2008).

user spends playing the game, increases the intensity with which the user plays the game, and increases the likelihood that the user will come back to play again. All games, regardless of genre, should aim to create an ideal mixture of these three elements, because doing so maximizes a user's opportunity to reach agency and increases user satisfaction. As stated above, there are many ways that this can be accomplished. Donkey Kong is simply one example of how game, story and control were successfully mixed to give players an entertaining and immersive experience.

This study uses the framework discussed in this section in an attempt to measure the level of control that Japanese and Americans desire in their video games. Specifically, it tries to determine if the location of the Japanese and American optimal agency regions (the overlapping area between game and story) are different in terms of the level of control desired.

### *Differences in Preference*

Game developers on both sides of the Pacific agree that the preferences of Japanese and American video gamers are quite different.<sup>38</sup> The consensus is that Americans prefer a relatively higher level of control in most aspects of their video games, compared to the Japanese. However the evidence cited to support these arguments is largely anecdotal, and objective data analysis on the issue is lacking. As discussed above, there are two general elements of control relevant to this study,

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<sup>38</sup> Evidence of this consensus is provided in JC Barnett, "The Difference," <http://japanmanship.blogspot.com/2006/10/difference.html>, (accessed November 26, 2008). and Kurt Kalata, "Clash of the Cultures," January 18, 2007, <http://www.1up.com/do/feature?cid=3155815>, (accessed November 16, 2008).

player control (game) and storyline control (plot). Player control refers to the ability to alter a character's speech, movement, look and view point.

There are two differences commonly identified by developers that relate to player control. The first relates to the control users are given in character customization. JC Barnett, an American video game developer working in Japan, explains that Japanese video games do not generally allow the user to modify the characters that appear in the title.<sup>39</sup> Alternatively, Western games show a trend towards giving its users more character design options. Western gamers, Barnett argues, "[want] to decide who to become, in his own time, his own actions, his own trousers."<sup>40</sup> In contrast, the Japanese are more concerned with following a story and less interested in designing their characters. Barnett argues "...when you follow a story you don't want to have to make your own characters. It's a bit like watching a film with the main character blacked out so you can imagine what he'd be like yourself."<sup>41</sup> As a result, those who agree with Barnett assert that American gamers want relatively more control over the appearance of their video game characters than their Japanese counterparts. This difference may or may not be attributed to a difference in culture, but we lack the necessary objective data to determine if it is truly related to aspects of culture. For example, the variables of age and experience could have a greater effect on one's desire for more character design options than the variable of culture. This assertion will be tested by measuring the aspects of culture

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<sup>39</sup> Barnett, "The Difference".

<sup>40</sup> Ibid.

<sup>41</sup> Ibid.

that may be responsible for this difference and controlling for the variables of age and experience.

The second player-control difference between these two segments relates to how the main character is viewed with respect to the in-game camera. In-game camera refers to the perspective a user is given in a video game. This perspective acts as the user's window into the virtual world, and it can be user-controlled or fixed. Video game journalist, Kurt Kalata, argues that American gamers want more control over the in-game camera than Japanese gamers. He wrote an article that includes interviews with American and Japanese game developers addressing the issue. American developer James Clarendon observes that "many Japanese titles fix the camera for a better cinematic presentation, while good Western titles allow the player to look around the environment for better gameplay."<sup>42</sup> Japanese developer and producer of *Dead Rising*, Keiji Inafune, gives some insight as to why this may be the case when he states:

The Japanese don't really feel the need to control the camera. For instance, Japanese gamers playing *Lost Planet* at the Tokyo Game Show sometimes had trouble controlling the camera, and it was clear to me that they are simply not acclimated to this sort of control...[the] Japanese...prefer this way of doing things because they can focus on the actual game play. Western audiences, I feel, are much better at ... [adapting] to the freedom and requirements of a user-controlled camera...<sup>43</sup>

Culture may significantly influence a gamer's preference for a user-controlled or fixed camera. Inafune implies that American gamers desire more camera control than

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<sup>42</sup> Kalata, "Clash of the Cultures," 2.

<sup>43</sup> Ibid.

Japanese gamers because they can cope better with the uncertainty that accompanies the added control.

Recalling our definitions of story from the previous section, story control refers to the number of storyline options available to the user, the order in which users can take these options, and the effects that a user's choice has on the storyline "downstream." For example, a user may be presented with a situation where a computer-controlled character asks for the user's help in stage one of a game. The user can choose to help or ignore the request. Either decision will have ramifications for what happens to the user in a later stage of the game. If the user chose to help the character in stage one, the character might return the favor by assisting the user in a particularly difficult portion of stage two. The character might also introduce the user to a friend that offers the user a series of new storyline paths to navigate. If the user ignored the character's request in stage one, the character might refuse to help the user in their time of need in stage two.

Some developers argue that the most drastic difference between the Japanese and American markets is in their preference for linear (structured) or non-linear (unstructured) video game plots.<sup>44</sup> Developers on both sides seem to agree that American video gamers prefer games that are non-linear (unstructured).<sup>45</sup> This type of storytelling gives users relatively more control over character relationships, the virtual world, and the overarching plot. An example of non-linear (unstructured) storytelling is the *Grand Theft Auto* series. Although there is an overarching plot that

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<sup>44</sup> Kalata, "Clash of the Cultures," 4.

<sup>45</sup> Ibid.

remains relatively unaffected by the user's actions, this plot usually is secondary to the game's multitude of mini stories, which can be chosen as the user sees fit and whose availability is affected by the user's in-game actions.<sup>46</sup> Conversely, Japanese gamers prefer linear (structured) storytelling.<sup>47</sup> As the word implies, linear storytelling does not deviate (or has a relatively small degree of deviation) from beginning to end, and provides the user with only limited control over how and when the story unfolds. The game *Final Fantasy VII* is an appropriate example of linear (structured) storytelling. Although the user can choose to go play various mini games or travel around the world map, their actions have a limited effect on the game world and virtually no effect on the overarching storyline.<sup>48</sup> According to Inafune, one of the factors influencing camera preference is a user's ability to cope with levels of ambiguity. He asserts that this is the same underlying factor responsible for the difference in desire for storyline control, and naively argues that the technique a society used to acquire its food hundreds of years ago directly influences video game preference.

Culturally speaking, Japanese culture is firmly rooted in wet-rice agriculture and its status as an island nation. Japanese want to be able to plan, they want to have guidance, they want to have focus. To put it simply, Japanese people feel uncomfortable with the unknown and not understanding the future...[the] Japanese enjoy having these clearly-defined goals... Westerners, on the other hand, seem to be excited by the unknown. For instance, [coming from] a hunting and trapping society, an American may go deer hunting and encounter a bear. Japanese would be

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<sup>46</sup> Recall the scenario described in the previous paragraph. GTA provides different missions and cars based on the decisions you make and the actions you take in the game.

<sup>47</sup>Ibid.

<sup>48</sup> In-game actions have relatively little effect on the overall story. For example, if a character in your party dies in *Final Fantasy VII* and is left un-revived, the “dead” character will still appear and act normally in scenes that advance the plot. In this sense, *Final Fantasy VII* is more about progressing through a story than it is creating one of your own.



scared by this encounter, whereas the American will probably shoot the bear and go back excited that he got a bear instead of a deer. The unknown encounter becomes even better than the known. I feel this is the key difference.<sup>49</sup>

Kobayashi, too, takes note of this difference when he states, "a lot of [American] gamers prefer to make the adventure their own and prefer the open-ended style."<sup>50</sup>

While these observations may be true, the reasons cited with this difference are imaginative, and these authors often attribute differences to culture when in fact they may be due to personality types. For example, Inafune assumes that since Japan was an agrarian society a preference for nominal storyline control should be observed more in Japanese society compared to other, hunting and trapping societies such as the US. Arguments like these are strikingly familiar to those found in *Nihonjin-ron* (Theories of Japanese-ness), which attribute differences across a variety of topics to one's Japanese-ness.<sup>51</sup> Such arbitrary arguments not only prevent us from achieving an in-depth understanding of such phenomena and lead to a type of circular logic, but these arguments can also be potentially misleading. Anyone who has visited Japan quickly realizes that it is a highly urbanized country. Furthermore, the fact that less than five percent of Japan's workforce worked in the agriculture sector in 2007 suggests that modern-day Japanese may not be as rooted in their wet-rice agricultural customs as some would suggest.<sup>52</sup> Regardless, claims like this one must be objectively tested to determine their veracity.

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<sup>49</sup> Ibid., 4.

<sup>50</sup> Ibid.

<sup>51</sup> For more information on *Nihonjin-ron*, refer to [http://en.wikipedia.org/wiki/Nihonjinron#Basic\\_theses](http://en.wikipedia.org/wiki/Nihonjinron#Basic_theses).

<sup>52</sup> 3.4% worked in agriculture. Refer to E-stat, "Population of 15 years old or more by labor force status, agri-/non-agriculture, status in employment (employee in non-agricultural industries by number

One way to test whether the alleged differences in video game preference are related to the extent that a culture tries to avoid uncertainty is to use the scale developed by Geert Hofstede. Hofstede's Uncertainty Avoidance Index measures the tendency of a culture to avoid ambiguous situations. Hofstede argues that societies avoid uncertainty by creating and following rules, which bring an increased level of certainty and security to vague situations.<sup>53</sup> Hofstede's Uncertainty Avoidance Index is measured using three latent factors: 1) rule orientation, 2) stress, and 3) employment stability. The first factor, rule orientation, measures the level of importance put on rules as well as the extent that a society is willing to adhere to them. Hofstede observes that those willing to break an organization's rules have a higher tolerance for uncertainty. Meanwhile, his study suggests that those who are unwilling to break the rules, even if it is in the organization's best interest, have a lower tolerance for uncertainty. The factor of stress measures the amount of stress that individuals in a specific culture feel in their everyday lives. Hofstede found that cultures with a higher mean stress were more likely to have a stronger rule orientation. Conversely, cultures with lower mean stress were more likely to have a weaker rule orientation. Regrettably, my study did not measure for the third factor, employment stability. This is due to the fact that many participants in my study were students. With an Uncertainty Avoidance Index score of ninety-two, Japanese society was found to have a strong tendency to avoid ambiguous situations. In fact, Japan has the

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of persons engaged in enterprise), age," <http://www.e-stat.go.jp/SG1/estat/ListE.do?lid=000001018314>, (accessed on November 26, 2008).

<sup>53</sup> Hofstede, *Culture's Consequences*, 148.

seventh highest score out of the fifty-six countries where Hofstede conducted his research. Conversely, the United States was assigned a score of forty-six, and was ranked forty-third. Hofstede's study suggests that Inafune's comments regarding Japanese gamers and their preference for structured and unambiguous games may be correct. Furthermore, it provides us with a means to objectively measure if video game preference is related to this aspect of culture.

Jerry Burger's Desire for Control personality scale provides an additional tool that may be helpful in understanding how certain aspects of culture may influence the preference for control in video games. Burger explains that his scale measures "the extent to which people generally are motivated to see themselves in control of the events in their lives."<sup>54</sup> Within this scale, Burger identifies five latent factors: 1) a General Desire for Control, 2) Decisiveness, 3) Preparation-Prevention, 4) Avoidance of Dependence, and 5) Leadership.<sup>55</sup> These five factors provide an estimation of how much control one wants in one's everyday life. By using Burger's twenty-item scale, this study identifies if American and Japanese video gamers differ in the level of control that they desire in their everyday lives, and if this desire translates into desire for control in video games.

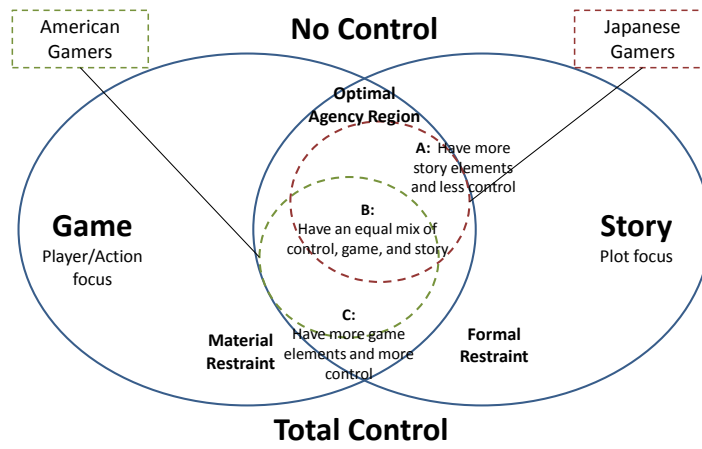
The difference between American gamers in their preference for game-centric games with a higher level of control compared to Japanese is graphically represented in Figure 1.4.

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<sup>54</sup> Burger, *Desire for Control*, 6.

<sup>55</sup> Jerry Burger, "The Desirability of Control," *Motivation and Emotion* (1979): 384-387.

Figure 1.4



Within the optimal agency region there are two agency sub-regions, one that represents the optimal agency level for American gamers and another for Japanese gamers. Notice that both overlap with one another (region B), and each gravitates towards an opposing pole (region A for the Japanese and region C for Americans). The Japanese optimal agency region gravitates towards a pole between the element of Story and level of No Control. According to the above arguments, this is attributable to Japanese being relatively uncomfortable with uncertainty and preferring games that focus on the plot. The American optimal agency region gravitates towards a pole between the element of Game and level of Total Control. Developers suggest that this is primarily due to Americans dealing relatively well with higher levels of uncertainty and preferring to have more options to choose.

## *Hypotheses*

The hypotheses of this study were based on the above arguments. The first hypothesis focuses on the the optimal agency regions of American and Japanese gamers.

**H1:** There is a difference in the desired level of control in video games between the Japanese and Americans.

The second and third hypotheses focus on the relationship between a culture's Uncertainty Avoidance and Desire for Control, and level of control in a video game. Hofstede found that Americans were less likely to avoid ambiguous or uncertain situations than the Japanese.<sup>56</sup> Inafune asserts that American gamers are able to adapt to uncertainty and control in video games more than Japanese gamers.<sup>57</sup> Hence, Americans should be able to cope with uncertainty better than the Japanese in their everyday lives as well as in video games.

**H2:** There is a negative relationship between the desire for control in video games and Uncertainty Avoidance

Although Burger did not conduct a direct comparison between cultures in his study, other research suggests that Americans may want more control in their video games than the Japanese. For example, Li-Jun Ji, Richard Nisbett, and Kaiping Ping found that Japanese have a relatively high level of external locus of control (LOC) compared to Americans.<sup>58</sup> Those with an external LOC believe that they cannot control the events that affect them. Those with an internal LOC (in this case

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<sup>56</sup> Hofstede, *Culture's Consequences*, 148.

<sup>57</sup> Kalata, "Clash of the Cultures," 4.

<sup>58</sup> Li-Jun Ji, Kaiping Peng, and Richard Nisbett, "Culture, Control, and Perception of Relationships in the Environment," *Journal of Personality and Social Psychology* (2000): 943-955.

Americans) believe that they are able to influence and control the events that affect them. A separate study conducted by John Reich and Alex Zautra found that an external LOC negatively affects one's desire for control. They explain that "the combination of two factors that reduce the desire for control (age and external locus of control) led to little motivation to strengthen one's own personal control."<sup>59</sup> The Japanese have more of an external LOC than Americans, and an external LOC has a negative effect on desire for control. According to the game-developer arguments above, Americans prefer more control in their video games compared to the Japanese. Hence, Americans should have a higher desire for control in their everyday lives and in video games compared to the Japanese.

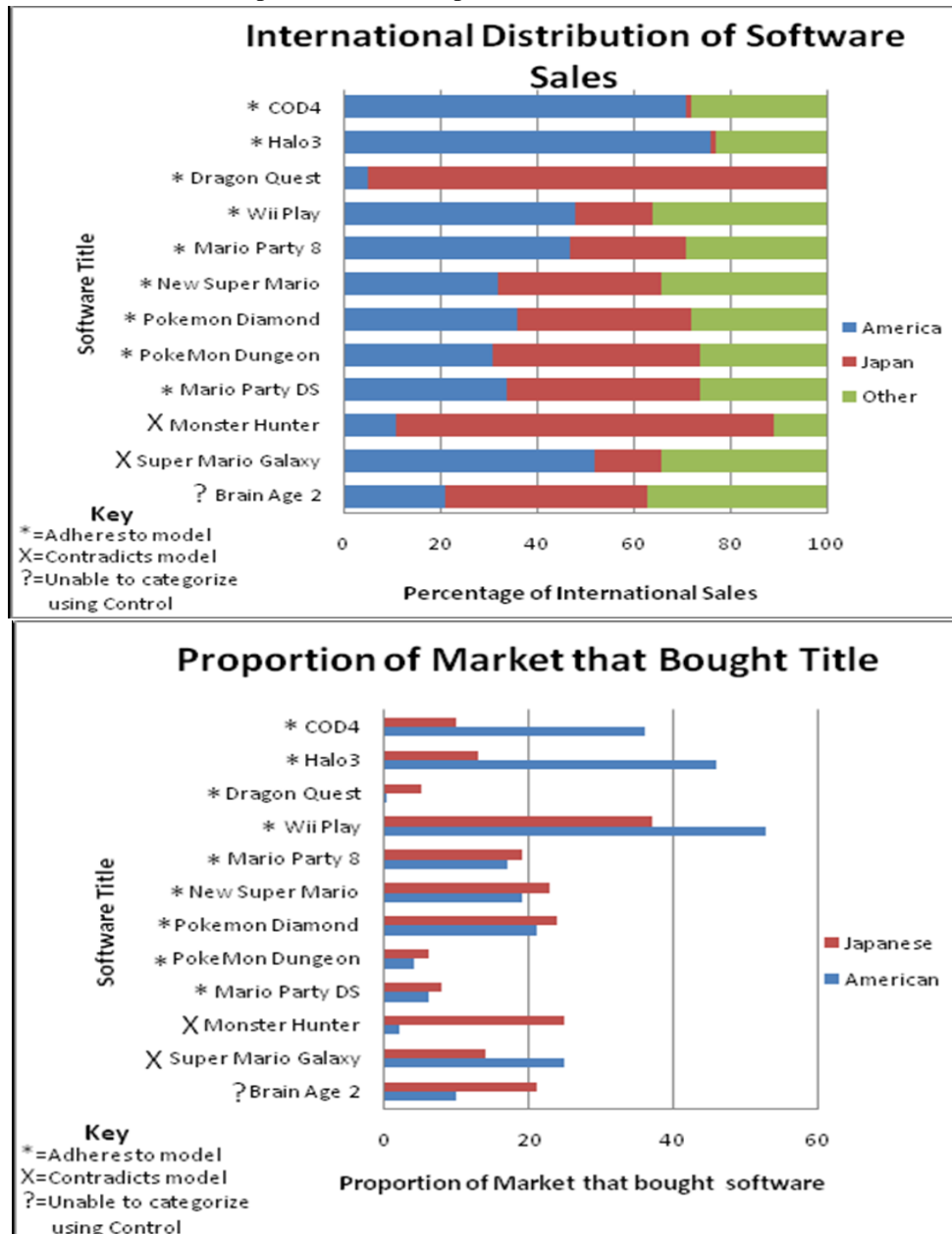
**H3:** There is a positive relationship between the desire for control in one's everyday life and the desire for control in video games.

If the model in Figure 1.4 is accurate, games that sell well in both markets should reside in region B (i.e. have an equal mix of control, game and story). Likewise, games that only sell well in the United States should reside in region C (i.e. have relatively more game elements and a higher level of control), and games that only sell well in Japan should reside in region A (i.e. have relatively more story elements and a lower level of control).

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<sup>59</sup> John Reich, and Alex Zautra, "Experimental and Measurement Approaches to Internal Control in At-Risk Older Adults," *Journal of Social Issues* (1991): 143-158.

Figure 1.5  
Sales Data for Top-Ten Titles in Japanese and American Markets in 2007



An examination of sales data for the top-selling 2007 video games in both markets provides some evidence to support the accuracy of this framework. Figure 1.5 contains two bar graphs for the 2007 top-ten titles that were available in both the

American and Japanese markets. The first graph shows the title's international sales distribution across the US, Japanese and all other markets. The second graph shows the proportion of the potential market that bought the title in Japan and America, respectively. Given our framework and discussed market differences, we might expect the sales figures of a game that gives users a large amount of control over the elements of game and story to be relatively higher in the American market. Looking at the top-selling titles from 2007, Bungie's *Halo 3* arguably meets these criteria, since it gives users a high level of control in its multiplayer mode. Seventy-five percent of *Halo 3*'s total sales were in the United States, and nearly half of all Xbox 360 owners in the United States bought a copy (6.03 million copies purchased/13 million Xbox 360 owners). Conversely, the Japanese market comprised one percent of the game's total sales, and thirteen percent of Japanese Xbox 360 owners purchased the game (100,000 copies purchased/768,597 Xbox 360 owners).<sup>60</sup> Similarly, our model predicts that a story-centric game with limited control is more likely to appeal to the Japanese market. Sales figures from a game that fits this description, Square Enix's *Dragon Quest IV DS*, supports this hypothesis. The Japanese market makes up ninety-five percent of *Dragon Quest IV DS*'s total sales, and five percent of all Nintendo Dual Screen (DS) owners in the market purchased the title (1.3 million copies sold/ 23.4 million DS owners). The American market, which makes up five percent of the game's total sales, was not nearly as responsive.

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<sup>60</sup> Sales figures found from <http://vgchartz.com/>, (accessed November 14, 2008).



Less than one percent of DS-owning Americans bought this game (70,000 copies sold/ 26.5 million DS owners).

Although sales figures of the majority of titles support this framework, there are a couple of counterexamples. Most notable is Capcom's *Monster Hunter Freedom 2*. As the title implies, *Monster Hunter Freedom 2* is a game that allows users to hunt, trap and kill mythical creatures. It gives users numerous options and a high level of control over their character's appearance and their character's actions. Deciding which quests to complete and how to complete them are also the prerogative of the user. According to our model, a video game with such a high level of control should be relatively successful in the United States and not appeal as much to the Japanese market. In fact, this is not the case. Seventy-eight percent of *Monster Hunter Portable 2*'s sales are from the Japanese market, and one-quarter of all Japanese PlayStation Portable (PSP) owners purchased the game (1.75 million copies sold/ 7.1 million PSP owners). Conversely, only two percent of American PSP owners purchased the game (240,000 copies sold/12 million PSP owners), and American sales account for eleven percent of the game's total sales.

There are a number of additional factors outside of culture that may explain the sales figures for *Monster Hunter Portable 2*. For example, differences in marketing campaigns, distribution channels, laws, and political environments can all significantly affect the sales of a video game. While it does not disprove the framework, the sales data does provide evidence that runs contrary to it.

There has been at least one attempt to use quantitative analysis to address the differences in video game preference between Japanese and Americans. In her thesis *Cultural Influences on Video Games: Players' Preferences in Narrative and Gameplay*, Anita Ngai explored how Japanese and Americans differed in their preference for control in video games. Ngai's study did not find any statistically significant differences between these two groups. However, there are four limitations that may have prevented this study from rendering accurate results. The first limitation of Ngai's study was the limited number of participants, 115 in total. The second limitation was the fact that it only asked participants for their nationality, not their cultural affinity. Since we are trying to measure the effect of culture on video game preference, we must determine the culture that a participant most aligns with to ensure accurate results. For example, some participants may have acquired American citizenship but still consider themselves as Japanese. In addition to nationality, my survey will also ascertain the culture that a participant most identifies with.

The third limitation of Ngai's study is in the way that the questions were posed. Rather than directly asking participants about the level of control that they want in their video games, it asked them about their *perception* of how much control a video game provides. For example, question twenty-two asks "When playing a \_\_\_\_ game, I feel I'm in control of the outcome and progression."<sup>61</sup> Participants are able to choose from the action adventure, driving, sports, role-playing game (RPG), strategy and simulation genres. Likewise, question twenty-three asks "I feel that I have control

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<sup>61</sup> Anita Ngai, "Cultural Influences on Video Games: Players' Preferences in Narrative and Gameplay," (Master's Thesis, University of Waterloo, 2005) 80-81.

over my actions in a \_\_\_ game.”<sup>62</sup> These questions are problematic when trying to determine if American and Japanese preferences for control in video games differ. For example, two gamers could agree that sports games give the user the highest level of control but disagree about which type of game gives the “ideal” level of control. In an attempt to avoid this pitfall, my study phrases questions in such a way that disagreeing or agreeing with it will indicate the desirable level of control.

The fourth limitation of Ngai’s study is that it relies heavily on genres. Genres are vague and ambiguous, and may have inhibited Ngai’s study from providing accurate results. Simply asking American and Japanese participants if the RPG genre gives an “ideal” level of control, for example, increases the risk of inaccurate results. American and Japanese participants may both answer “yes” to this question, even if their preferences for control were completely opposite from one another. This problem arises from the presence of multiple sub-genres within the larger video game genre of role-playing. As discussed above, Western RPGs tend to give the user a high level of control over the game and story elements of the game. Conversely, Japanese RPGs give the user a relatively lower level of control over the game and story elements and focus on providing an immersive, structured plot. Therefore, American and Japanese participants could respond “yes, the RPG genre gives an ‘ideal’ level of control,” even if each respondent is thinking of an RPG style that offers a completely different level of control. Rather than using video game genres, my study asks participants questions that use specific in-game situations in an

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<sup>62</sup> Ibid.

attempt to obtain accurate results for the amount of control Japanese and American video gamers desire in their games.

In order to accurately measure the dependability of our model, the alleged cultural differences in video game consumption must be measured in as much isolation as possible from other, non-cultural variables and validated through quantitative analysis. Only then can we begin to better understand the role culture plays in Japanese and American video game consumption. This is precisely what my study aims to do. By trying to measure the amount of control Japanese and American video gamers desire in their video games, my study will determine if there is a statistically significant difference between the Japanese and American gamer. This study better characterizes control-related preferences of gamers in both markets, and determines if these differences are related to aspects of these two cultures, namely uncertainty avoidance and one's overall desire for control.

## **Methodology**

A series of statistical tests were conducted in an attempt to determine 1) if there was a significant difference between the level of control Japanese and American gamers desired in the video games they play, 2) if there was a negative relationship between the desire for control in video games and the Rule Orientation and Stress factors found in Geert Hofstede's Uncertainty Avoidance Index, and 3) if there was a positive relationship between the desire for control in one's everyday life

and the desire for control in video games. This section discusses the methodology used to gather and analyze the data used in this study.

### *Data and Participants*

Two online surveys were used to gather responses from Japanese and American participants, one in English and one in Japanese. To ensure that the Japanese translation accurately reflected the content of the English survey, the survey was validated by three native Japanese speakers who were also proficient in English. All three individuals indicated that the Japanese translation of the survey accurately reflected the content of the English questions. The survey contained four sections. The first section was comprised of four questions that asked participants to provide relevant demographic information. The second section was comprised of eighteen questions that asked participants to rate the desirability of having control over different aspects of a video game: 1) control over the character's movement and speech, 2) control over character design, 3) control over how the character is viewed via the camera, and 4) control over when and how the story develops. This section used a five-point likert scale. The third section was comprised of five questions that related to Geert Hofstede's Uncertainty Avoidance Index, and gathered information about how likely the respondent becomes uncomfortable with higher levels of ambiguity. This section used a five-point likert scale. The fourth section was comprised of twenty questions that were taken directly from Jerry Burger's Desire for Control scale, which measured the level of control a respondent desired in their

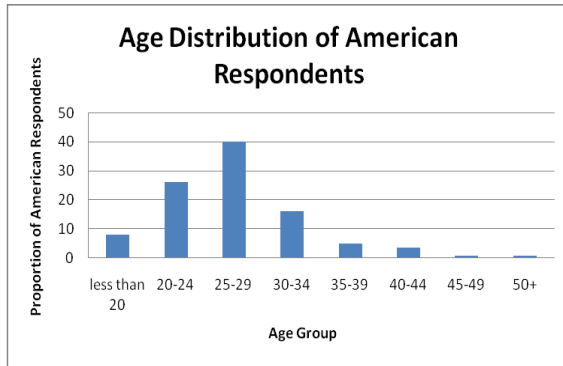
everyday lives. This section used a seven-point likert scale. See Appendix 5 and Appendix 6 for more details on these scales.

Participants for this study were selected using a convenience sample by promoting the surveys at popular video game forums, video game-centered social networking groups, and by word of mouth. For a list of locations, please refer to Appendix 3. Participants for this study were able to access the online survey from November 10, 2008 until January 15, 2009. A Google tracking system was used to identify the geographic location of each respondent at the time of participation. According to Google's data, participants were not consolidated into a single geographic region within the United States or Japan. Rather, they were dispersed relatively evenly throughout the interior of both nations.

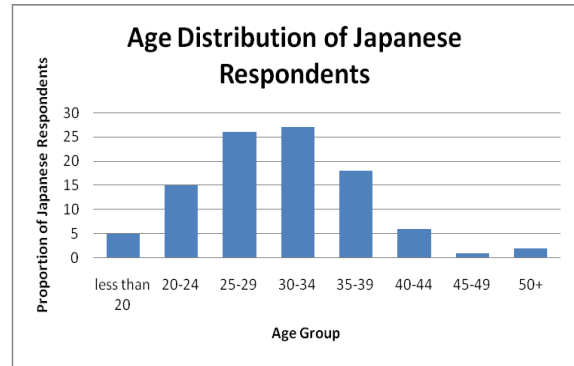
While the survey was available online, a total of 366 respondents participated in the study. 199 of these respondents held Japanese citizenship and affiliated themselves most with Japanese culture (referred to as 'Japanese respondents'). 138 of the respondents held American citizenship and affiliated themselves most with American culture (referred to as 'American respondents'). The remaining respondents were either 1) from a country other than the U.S. or Japan, 2) did not have citizenship in the country that they most affiliated themselves with culturally, or 3) both 1 and 2. The average age for the Japanese respondents was thirty-one years, and the average time spent playing video games a week was somewhere between 1-8 hours. The average age for the American respondents was twenty-seven years, and the average time spent playing video games a week was also somewhere between 1-8

hours. The graphs below show the distribution of age for Japanese and American respondents, as well as the distribution of game play frequency.

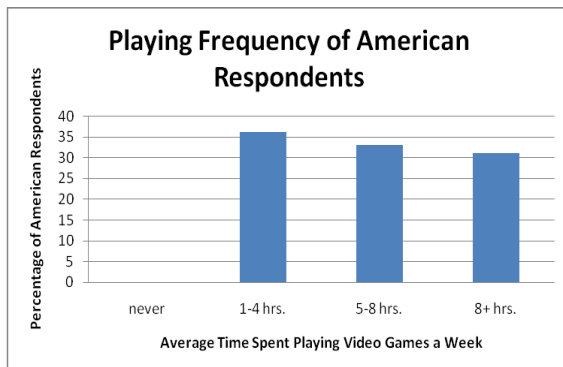
**Figure 2.0**



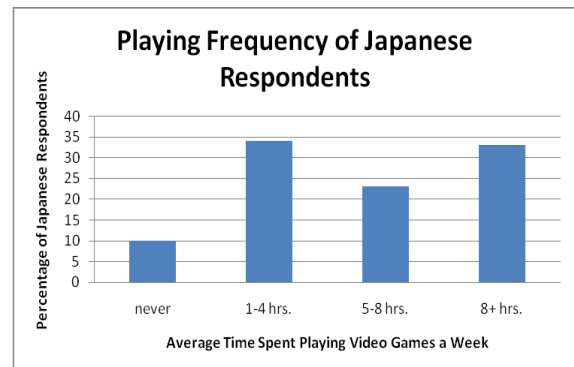
**Figure 2. 1**



**Figure 2.3**



**Figure 2.4**



T-test results showed that there was a significant difference between the American and Japanese age distributions. This difference was taken into consideration by controlling for it in the linear regressions. T-test results showed that there was no difference between the American and Japanese experience distributions.

### *Analysis*

After the data was gathered, factor analysis, linear regression and correlation tests were conducted. This section will detail the manner in which each test was conducted as well as the reason for doing so.

A factor analysis was independently conducted for each of the three scales used in this study (the Video Game Control, Uncertainty Avoidance, and Desire for Control scales). This was done to condense the items of each scale to a representative variable(s) that could be used later for linear regression analysis. This analysis also served as a means to confirm that this study's factors for Uncertainty Avoidance and Desire for Control were similar to those found in earlier studies.

After significant factors were identified for each scale, a series of linear regressions were run in an attempt to understand their relationship to the demographic information collected. In the regression models, each factor was set as the dependent variable, and the cultural affiliation/citizenship, age, and hours video games were played a week were the independent variables. The relationship between the independent variables and the respective dependent variables was then examined and compared to the regression models of other factors in an attempt to identify meaningful relationships. Linear regression analysis allowed us to identify any statistically significant effects that the demographic information had on the scale factors. In short, if the effect of the culture variable was found to have a significant effect during these tests, we would know that culture actually influences the factor (dependent variable) being tested.

A correlation analysis was conducted to see how factors from all scales related to one another. This helped us build a model that shows how the factors found in earlier analysis relate to one another.



## Discussion of Results

### *Factor analysis*

A factor analysis was independently performed on each of the three scales used. Scree plots for each of the factor analyses are found from Appendices 2-4. Factors were retained based on an analysis of the scree plots and eigenvalues. Factors with eigenvalues greater than one and appeared in the upper portion of the scree plot were retained for subsequent analysis.

The factor analysis for the eighteen-item scale, Desire for Video Game Control, confirms a uni-dimensional construct (one factor). Results of this analysis are found below in Figure 3.1. The corresponding scree plot is found in Appendix 2.

**Figure 3.1**  
**Factor Analysis Results for Video Game Control Scale**

Factor1		
Variance explained by Video Game factor1= .6595		
scale item	rank	weight
game1		0.35453
game2		0.48190
game3	5	0.58146
game4		0.54036
game5		-0.52694
game6	4	0.60688
game7		0.47299
game8		0.39483
game9		0.34666
game10		-0.14743
game11	6	-0.56219
game12	2	0.67000
game13		-0.43903
game14	3	0.64629
game15	1	-0.67559
game16		0.10808
game17	8	-0.55245
game18	7	0.55562

#### **FACTOR1--Desire for Control in Video Games**

##### **() =negatively loaded**

**Listed by rank from 1** (i.e. the proportion of total variance for the #1 ranked item is larger than #2, #3, etc.)

1. (Making many decisions is troublesome and annoying) (item 15)
2. A video game is more entertaining when I am able to affect the storyline with my actions (item 12)
3. A game is most entertaining when it allows me to make as many choices as possible. (item 14)
4. I enjoy creating my own characters. (item 6)

5. I enjoy being able to affect the character's relationships with my actions. (item 3)
6. (I find numerous story options paralyzing.) (item 11)
7. I prefer games where I have a lot of control over what I do and when I do it. (item 18)
8. (There are many situations where I would prefer to have no choice rather than having to make a decision.) (item 17)

The factor explains just under sixty-six percent of the total variation of the eighteen items. Some of the items that were positively loaded on this factor include: question 12, "a video game is more entertaining when I am able to affect the storyline with my actions," question 6, "I enjoy creating my own characters," and question 3, "I enjoy being able to affect the character's relationships with my actions." There are also a number of items that are negatively loaded on this factor. For example, question 15, "Making many decisions is troublesome and annoying," question 11, "I find numerous story options paralyzing," and question 17, "there are many situations where I would prefer only one choice rather than having to make a decision," all run contrary to the first set of questions. As the above items suggest, this factor measures the user's desire to make decisions and have an impact on the video games played. Given the pattern of factor loadings, this factor was labeled as "Desire for Control in Video Games." Interestingly, this analysis did not find a separate factor for each type of video game control outlined in the literature review (control over the character's movement and speech, control over character appearance, control over the camera, and control over the storyline). Rather, this data suggests that it is a single latent factor that is most responsible for the desire for (or avoidance of) control in a video game.

Figure 3.2 displays the detailed results of the factor analysis for the five items that measured how likely a respondent was to avoid ambiguous situations. The

corresponding scree plot is found in Appendix 3. When Hofstede conducted his analysis, he found that there were three latent factors that affected a society's Uncertainty Avoidance Index: 1) employment stability, 2) rule orientation, and 3) stress. My study did not measure the employment stability factor, since it was believed that the majority of participants would be students.

**Figure 3.2**  
**Factor Analysis Results for Uncertainty Avoidance Index Questions**

Variance explained by Uncertainty Avoidance factor1= 0.99298040			
Factor1			
Factor Pattern			
scale	item	rank	weight
	1		0.29222
	2	4	0.41614
	3	1	0.57077
	4	3	0.44299
	5	2	0.46086

**FACTOR 1--Rule & Instruction Orientation () =negative loading**

**Listed by rank from 1** (i.e. the proportion of total variance for the #1 ranked item is larger than #2, #3, etc.)

1. it is important to closely follow instructions and procedures. (item 3)
2. It is important to have instructions spelled out in detail so that I always know what I am expected to do. (item 5)
3. Rules and regulations are important because they inform me of what is expected of me. (item 4)
4. Company rules should not be broken—even when the employee thinks it is in the company's best interest. (item 2)

As in Hofstede's, my study found a significant factor for rule orientation. This factor explains just over 99% of the original variance of the five-item scale. Some of the items that were positively loaded on this factor include: question 3, “it is important to closely follow instructions and procedures,” and question 2, “company rules should not be broken—even when the employee thinks it is in the company's best interest.” There were no items that loaded negatively on this factor. Since it represents the way

respondents regard rules and direction, this factor was identified as a user's "Rule & Instruction Orientation."

My study did not find a factor for stress as Hofstede did in his study. The fact that only a Rule & Orientation factor was found may be due to the fact that my study failed to include multiple items to measure respondents' stress levels. Question 1 in this section, "How often do you feel nervous or tense at work or school," was the only item on the survey that measured for this factor. As a result, it should not be surprising that a factor for stress did not emerge, since a factor is suppose to explain more variance than any single item. As a result of this oversight I was unable to use a factor for stress in our linear regression analysis. Instead, the single item that measured respondents' stress was set as the dependent variable. Although it was not as accurate as a stress factor, it allowed me to determine if there was a statistically significant difference in the stress level of respondents from these two cultures. This item was important to include because Hofstede showed that cultures that are relatively stressed tend to have a higher Uncertainty Avoidance Index.

The third factor analysis was done on the twenty-item scale used to measure Desire for Control. Recall that Burger identified five latent factors for his scale: 1) a General Desire for Control, 2) Decisiveness, 3) Preparation-Prevention, 4) Avoidance of Dependence, and 5) Leadership.<sup>63</sup> The factor analysis for my scale only produced two factors, for details see Figure 3.3. The corresponding scree plot is found in Appendix 4.

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<sup>63</sup> Jerry Burger, "The Desirability of Control," *Motivation and Emotion* (1979): 384-387.

**Figure 3.3**  
**Factor Analysis Results for Desire for Control Scale Questions**

Variance explained by Desire for Control factor1= .6208  
Variance explained by Desire for Control factor2= .1877

scale item	rank	Factor1 weight	rank	Factor2 weight
dc1		0.16805		0.13608
dc2		0.22380		0.08676
dc3		0.40567		0.34734
dc4	2	0.69517		0.28681
dc5	5	0.54622		0.23415
dc6		0.06097		-0.04076
dc7		-0.22151		0.16906
dc8	1	0.71878		-0.24462
dc9	6	0.54153		-0.13668
dc10		-0.52942		-0.00806
dc11	4	0.65975		0.04605
dc12		0.49457		0.05631
dc13		0.16535		-0.14121
dc14		0.41554		-0.29031
dc15	3	0.68624	2	0.40536
dc16		-0.39596		0.44368
dc17		0.21608		0.06827
dc18		0.39641		0.21691
dc19		-0.31210	3	0.38136
dc20		-0.48437	1	0.46125

**FACTOR 1–Desire for Leadership and Control in Everyday Life () =negative loading**

**Listed by rank from 1** (i.e. the proportion of total variance for the #1 ranked item is larger than #2, #3, etc.)

1. I enjoy making my own decisions (item 8)
2. I would prefer to be a leader than a follower (item 4)
3. When it comes to orders, I would rather give them than receive them (item 15)
4. I consider myself to be generally more capable of handling situations than others around me. (item 11 )
5. I enjoy being able to influence the actions of others (item 5 )
6. I enjoy having control over my own destiny (item 9)

**FACTOR 2–Avoidance of Leadership and Control in Everyday Life () =negative loading**

**Listed by rank from 1** (i.e. the proportion of total variance for the #1 ranked item is larger than #2, #3, etc.)

1. I like to wait and see if someone else is going to solve a problem so that I don't have to be bothered by it. (item 20)
2. When it comes to orders, I would rather give them than receive them. (item 15)
3. There are many situations in which I would prefer only one choice rather than having to make a decision. (item 19)

Although my study only found two significant factors, these two factors are consistent with Burger's factors. The first factor found in my study, for example, consisted mainly of items that were in Burger's factor 1, a General Desire for Control. For instance, question 8, "I enjoy making my own decisions," and question 11, "I

consider myself to be generally more capable of handling situations than others around me” were both heavily loaded on this factor. However, this factor also contained a couple of items that loaded on different factors for Burger. While question 4, “I would prefer to be a leader rather than a follower,” and question 15, “When it comes to orders, I would rather give them than receive them,” were included in factor 1 for my study, they were included in Burger’s factor 4 (Avoidance of Dependence) and factor 5 (Leadership), respectively. Note that differences were also found by Burger. For instance, items on this scale moved from one factor to another in two separate studies conducted by Burger.<sup>64</sup> It is also possible that Burger had a relatively more diverse sample population, as he sought all college students. My study focused on a subset of Burger’s sample population, those who play video games. Lastly, factor 1 of my study of desire for control was primarily composed of items that measure one’s General Desire for Control in everyday life, which makes this factor sufficient for testing our hypotheses. This factor explains 62% of the twenty-item scale’s original variation, and was labeled as “Desire for Leadership and Control in Everyday Life.”

The second factor found from this scale explains about 19% of the scale’s variation. The items that loaded heavily on this factor were primarily ones that dealt with avoiding leadership. Question 20, “I like to wait and see if someone else is going to solve a problem so that I don’t have to be bothered by it,” and question 19, “There are many situations in which I would prefer only one choice rather than

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<sup>64</sup> Ibid.

having to make a decision,” both serve as examples. There were no factors that loaded negatively on this factor. Given its composition, this factor will be referred to as “Avoidance of Leadership and Control in Everyday Life,” since it characterizes the degree to which respondents prefer having limited options and hesitate in making decisions in their lives.

### *Linear Regressions*

Before addressing the results found in this analysis, it is helpful to briefly explain the variables and coding schemes used. The variable "cul" refers to the answers respondents gave to question 1, "culturally, what country do you most associate with." For this variable Japanese respondents were coded as 2 and American respondents were coded as 1. Therefore, positive effects suggest that the dependent variable increases for Japanese compared to Americans. The variable "exp" refers to question three, "On average, how many hours a week do you play video games." Respondents chose one of four responses: “Never” (code=1) “1-4 hours” (code=2), “5-8 hours” (code=3), and “More than 8 hours” (code=4). Thus, the larger this number, the more hours a respondent played video games a week. The variable "Age" refers to the age of the respondent, which was calculated by taking the current year (2009) less the year that the respondent was born.

The results for the regression on the Desire for Control in Video Games factor are shown in Figure 3.4.

**Figure 3.4**  
**Linear Regression Results for Desire for Control in Video Games Factor**

Number of Observations Used: 298

Root MSE	0.86734	R-Square	0.0848
Dependent Mean	0.00751	Adj R-Sq	0.0755
Coeff Var	11542		

Variable	Coefficient/ Parameter Estimate	T Statistic	P Value
Intercept	.12159	.43	<.0001
Cul	.43940	4.16	<.0001
Exp	-.13894	-2.56	.0109
Age	-.01441	-1.97	.0503

**INTERPRETATION:**

- 1) Japanese are more likely to show a Desire for Decision Making & Impact (Video Game Factor 1).
- 2) As a video gamer becomes more experienced (hours/wk video games are played), the Desire for Decision Making & Impact (Video Game Factor 1) decreases.
- 3) Age has no significant effect on Desire for Decision Making & Impact (Video Game Factor 1).

This model had an adjusted R-squared value of .0755, indicating that the three independent variables (culture, experience and age) explained 7.55% of the total variation in the Desire for Control in Video Games factor. With a p-value of less than .0001, we see that the variable representing culture was statistically significant. Likewise, the variable representing the amount of time users play video games a week, exp, was also significant with a p-value of .0109. This means that both of these variables had a significant effect on the Desire for Control in Video Games. Since age had a p-value greater than .05 this implies that it has no effect on Desire for Control in Video Games. Notice the positive coefficient for culture. This suggests that Desire for Control in Video Games is greater for Japanese compared to Americans. The negative coefficient for average hours played a week (exp) suggests low-usage users preferred more control than high-usage users. Note that the linear regression does not imply that the level of desired control will continually decrease as a user becomes more experienced. Recalling our framework from chapter 1, a video



game that brings a user into agency requires a mix of both user control and user constraint. That is, high-usage gamers may still have wanted a level of control in their video games, they simply wanted it relatively less than low-usage users.

The significant results support our first hypothesis; there is a difference in the desired level of control in video games between Japanese and Americans. The following linear regression and correlation analyses helped determine if one's desire for control in video games is related to the degree our two cultures avoid uncertain or ambiguous situations and the level of control we desire in our everyday lives.

The results for the regression on the Rule & Instruction Orientation factor are shown in Figure 3.5.

**Figure 3.5**  
**Linear Regression Results for Rule & Instruction Orientation Factor**

Number of Observations Used: 316  
 Root MSE                0.71003      R-Square        0.0658  
 Dependent Mean        0.00701      Adj R-Sq        0.0568  
 Coeff Var                10135

Variable	Coefficient/ Parameter Estimate	T Statistic	P Value
Intercept	-.61603	-2.76	.0062
Cul	.38814	4.6	< .0001
Exp	.03452	.8	.4215
Age	-.00310	-.53	.5958

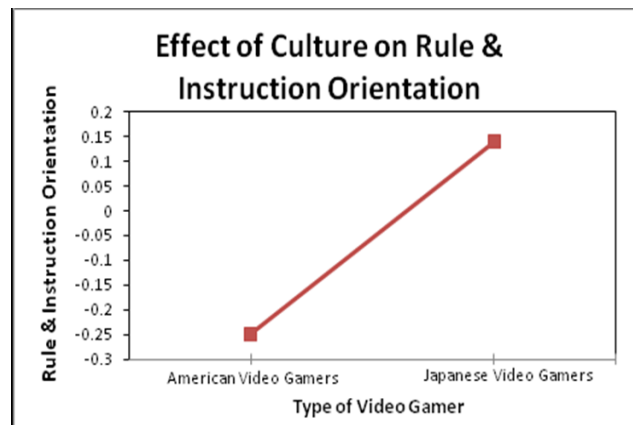
**INTERPRETATION:**

- 1) As one becomes Japanese, one's Rule & Instruction Orientation (Uncertainty Avoidance Index Factor1) goes up.
- 2) Experience (hours/wk video games are played) has no significant effect on one's Rule & Instruction Orientation (Uncertainty Avoidance Index Factor1).
- 3) Age has no significant effect on one's Rule & Instruction Orientation (Uncertainty Avoidance Index Factor1).

This model had an adjusted R-squared value of .0568, indicating that the three independent variables (culture, experience and age) explained approximately 6% of the total variation in Rule & Instruction Orientation factor. My variable for culture

was statistically significant with a p-value of less than .0001. The independent variables of experience ( $p=.4215$ ) and age ( $p=.5958$ ) did not have a significant effect on the Rule & Instruction Orientation factor. The positive coefficient for the culture variable suggests that American participants placed relatively less value on having and following rules than the Japanese participants. Figure 3.6 below illustrates this difference. The Y-axis represents the value of the Rule & Instruction Orientation factor given our independent values for culture, experience and age (this regression used an age of 29 years, which was the average between the Japanese mean (31) and American mean (27) ages).

**Figure 3.6**



Since this study was unable to find a factor for stress, I used the single item that measured respondents' stress level as the dependent variable in the regression model. The results for this regression can be seen in Figure 3.7.

**Figure 3.7**  
**Linear Regression Results for Uncertainty Avoidance's Stress Item**

Number of Observations Used:	326		
Root MSE	0.98087	R-Square	0.1541
Dependent Mean	3.14417	Adj R-Sq	0.1462
Coeff Var	31.19635		

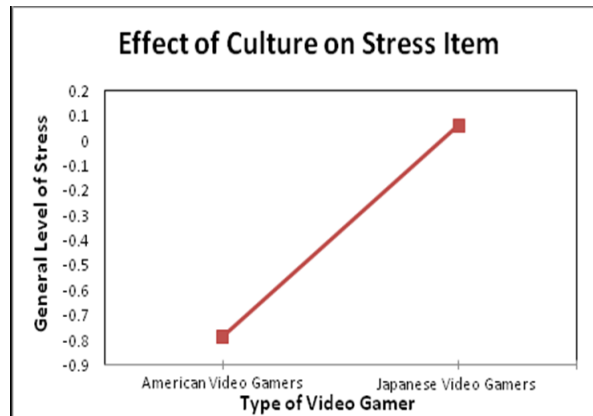
Variable	Coefficient/ Parameter Estimate	T Statistic	P Value
Intercept	1.70140	5.55	<.0001
Cul	.84640	7.41	<.0001
Exp	.04036	.69	.4917
Age	-.00039215	-.05	.9603

#### INTERPRETATION:

- 1) As one becomes Japanese, one's Stress Level (as measured by item 1 in the Uncertainty Avoidance section) goes up.
- 2) Experience (hours/wk video games are played) has no significant effect on one's Stress Level (as measured by item 1 in the Uncertainty Avoidance section).
- 3) Age has no significant effect on one's Stress Level (as measured by item 1 in the Uncertainty Avoidance section).

This model had an adjusted R-squared value of .1462, indicating that the three independent variables (culture, experience and age) accounted for approximately 15% of the Stress Level item's total variation. The variable for culture was significant ( $p < .0001$ ). The variables for experience ( $p = .4917$ ) and age ( $p = .9603$ ), however, were not significant. The positive coefficient of culture suggests that American respondents had a relatively lower stress level at work and school than Japanese respondents did (illustrated in figure 3.8 below). The Y-axis represents the value of the Stress Level item given our independent values for culture, experience and age (this regression used an age of 29 years, which was the average between the Japanese mean (31) and American mean (27) ages). The results from this and the prior regression suggest that the Americans who participated in this survey had a relatively lower Rule & Instruction Orientation and a relatively lower level of stress compared to the Japanese respondents. Recall Hofstede's theory, which showed that rule orientation and stress level are positively related to uncertainty avoidance. My results support Hofstede's Uncertainty Avoidance Index findings.

Figure 3.8



Since Burger did not conduct any comparative analysis across cultures for his Desire for Control scale, I was unable to directly compare the results of this study with those of Burger. However, the results for the two Desire for Control factors support the anecdotal evidence cited in chapter one, which argued that American video gamers want relatively more control in their everyday lives than Japanese gamers. The regression model results for Desire for Leadership and Control in Everyday Life are given in Figure 3.9.

Figure 3.9  
Linear Regression Results for Desire for Leadership and Control in Everyday Life Factor

Number of Observations Used: 305  
 Root MSE            0.88111    R-Square        0.0693  
 Dependent Mean    0.00202    Adj R-Sq       0.0600  
 Coeff Var            43638

Variable	Coefficient/ Parameter Estimate	T Statistic	P Value
Intercept	.82326	2.92	.0038
Cul	-.48754	-4.58	<.0001
Exp	-.02132	-.40	.6918
Age	.00048729	.07	.9469

#### INTERPRETATION:

- 1) As one becomes Japanese, the Desire for Leadership and Control (Desire for Control Factor 1) decreases.
- 2) Experience (hours/wk video games are played) has no significant effect on one's Desire for Leadership and Control (Desire for Control Factor 1).
- 3) Age has no significant effect on one's Desire for Leadership and Control (Desire for Control Factor 1).

This model had an adjusted R-squared value of .06, indicating that the three independent variables (culture, experience and age) explained 6% of the total variation in Desire for Leadership and Control in Everyday Life factor. The variable for culture was statistically significant with a p-value less than .0001. The variables for experience ( $p=.6918$ ) and age ( $p=.9469$ ) were not significant. The negative coefficient of  $-.4875$  suggests that American respondents wanted control in their everyday lives relatively more than Japanese respondents.

The regression results for the second factor, Avoidance of Leadership and Control in Everyday Life, also support this assertion. This was verified by the statistically significant variable for culture, which had a p-value of .0033, and its coefficient, which was positive (detailed results shown in Figure 3.10).

**Figure 3.10**  
**Linear Regression Results for Avoidance of Leadership and Control in Everyday Life Factor**

Number of Observations Used: 305  
 Root MSE                      0.86199      R-Square                      0.0321  
 Dependent Mean            0.00065029      Adj R-Sq                      0.0225  
 Coeff Var                      132554

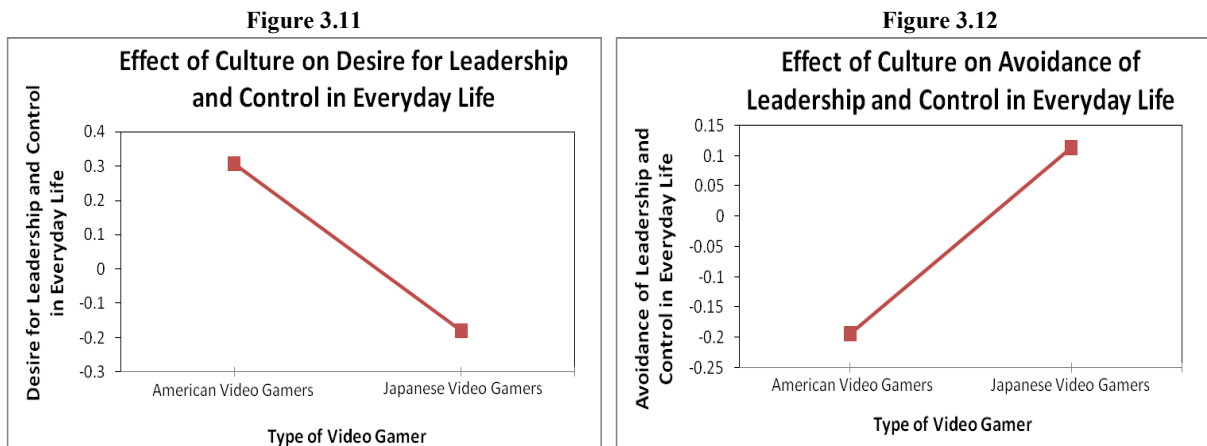
Variable	Coefficient/ Parameter Estimate	T Statistic	P Value
Intercept	-.15804	-.57	.5675
Cul	.30864	2.96	.0033
Exp	.01821	.35	.7293
Age	-.01315	-1.84	.0672

**INTERPRETATION:**

- 1) As one becomes Japanese, one's Avoidance of Leadership and Control (Desire for Control Factor 2) increases.
- 2) Experience (hours/wk video games are played) has no significant effect on one's Avoidance of Leadership and Control (Desire for Control Factor 2).
- 3) Age has no significant effect on one's Avoidance of Leadership and Control (Desire for Control Factor 2).

The regression model for Avoidance of Leadership and Control in Everyday Life factor had an adjusted R-squared value of .0225, indicating that the three independent

variables (culture, experience and age) explained just over 2% of the factor's total variation. Figures 3.11 and Figure 3.12 illustrate these effects. Figure 3.11 shows the effect of culture on the Desire for Leadership and Control in Everyday Life factor. Figure 3.12 shows the effect of culture on Avoidance of Leadership and Control in Everyday life factor. The Y-axis represents the value of the Desire for Leadership and Control in Everyday Life and Avoidance of Leadership and Control in Everyday Life factors given the independent values for culture, experience and age (these regressions used an age of 29 years, which was the average between the Japanese mean (31) and American mean (27) ages).



Recalling the arguments from chapter one, anecdotal evidence suggested that American video gamers desired relatively more control in their video games than their Japanese counterparts. Some video game developers, such as Keiji Inafune, claim that this difference was related to the Japanese (presumed) discomfort with ambiguous situations.<sup>65</sup> Other developers like Kobayashi, suggest that this difference

<sup>65</sup> Kurt Kalata, "Clash of the Cultures," 4.

may be related to American's desire for control.<sup>66</sup> Regressions results for the Uncertainty Avoidance and Desire for Control scales coincide with these assertions. My data showed that American respondents had a relatively lower rule and instruction orientation compared to Japanese respondents. American respondents were also relatively less stressed at work and school than the Japanese respondents. Similarly, the regression on the Desire for Control in Everyday Life factor suggests that American respondents wanted relatively more control in their everyday lives than Japanese respondents. Again, these results coincide with the assertions in chapter one.

Surprisingly, the results from my first linear regression are contrary to the anecdotal evidence given in chapter one, and do not support my first hypothesis. The empirical data suggested that American respondents, in fact, preferred relatively *less* control than their Japanese counterparts in the video games that they play. This result is noteworthy since the widespread belief among game developers is that American gamers want more control than Japanese gamers. The correlation analysis will show whether the factors for uncertainty avoidance and desire or avoidance for control in everyday life are directly related to the factor for desire for video game control.

### *Correlation Analysis*

A correlation analysis between all factors and the stress item was conducted in an attempt to validate the two remaining hypotheses:

**H<sub>2</sub>:** There is a negative relationship between the desire for control in video games and Uncertainty Avoidance

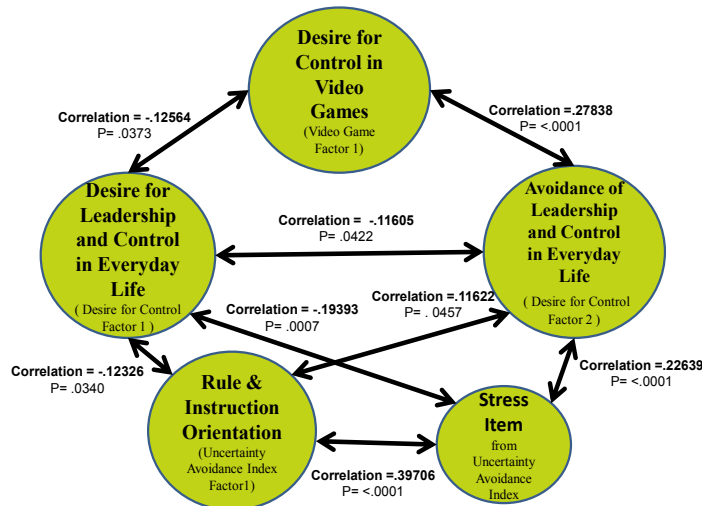
**H<sub>3</sub>:** There is a positive relationship between the desire for control in one's everyday life and the desire for control in video games.

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<sup>66</sup> Ibid.

Figure 3.13 is a conceptual model that will help illustrate the correlations between the factors used in this study.

**Figure 3.13**  
**Conceptual Model**



The correlations between Desire for Leadership and Control in Everyday Life and Desire for Control in Video games did not support the third hypothesis, which stated that the desire for control in everyday life would be positively correlated with one's desire for control in video games. The results showed that these two factors were negatively correlated (correlation =  $-.12564$  ( $p = .0373$ )). Similarly, there was a *positive* correlation between Avoidance of Leadership and Control in Everyday Life and Desire for Control in Video Games (correlation of  $.27838$  and a p-value less than  $.0001$ ).

The results of this analysis did not support the second hypothesis, which stated that desire for control in video games would be negatively correlated with higher Uncertainty Avoidance Index values. In fact, there was no direct relationship

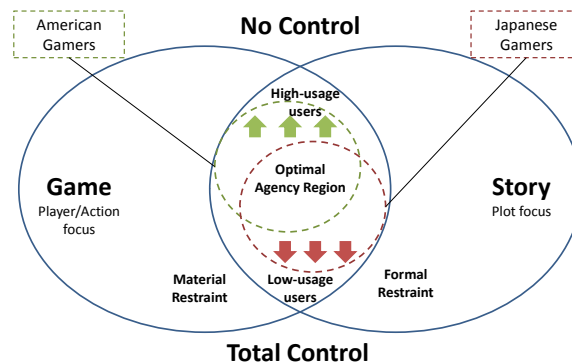


between the level of uncertainty avoidance in one's everyday life with one's desire for control in video games.

### *Summary of Results*

To summarize, recall that figure 1.4 on page 23 illustrated the presumed difference between Japanese and American video gamers in regards to control according to a variety of video game developers. Proponents of these arguments assert that American gamers want relatively more control in their video games than Japanese gamers. Contrary to the anecdotal arguments in chapter one, my study's empirical evidence suggested that American gamers preferred relatively *less* control in the games they play. Figure 3.14 below illustrates the difference between Japanese and American video gamers in regards to control according to this study's empirical data.

**Figure 3.14**  
**Agency Sphere Placement According to Empirical Evidence**



The data suggested that Japanese gamers' optimal agency region gravitates relatively closer towards Total Control. American gamers' optimal agency region gravitates

relatively closer towards No Control. The data also suggested that low-usage users tend to gravitate towards Total Control and high-usage users towards No Control. This trend exists for those from Japanese as well as American cultures. It is worth noting that the positioning of these spheres along the X-axis (Game-Story focus) was not directly analyzed in this study. Although both optimal agency regions are shown in the same positions along the X-axis given by the anecdotal evidence of video game developers, the validity of these arguments has yet to be verified through statistical analysis.

The data from this study did not support my second hypothesis, which stated that uncertainty avoidance was negatively correlated with desire for control in video games. My study found that American gamers are better able to handle uncertain situations in their everyday lives than Japanese gamers, which supports the arguments of developers like Inafune. However, my data suggested that there was no direct relationship between a culture's level of uncertainty avoidance and their desire for control in video games. This result contradicts the anecdotal arguments discussed in chapter one.

My results did not support the third hypothesis, which implied that desire for control in everyday life was positively correlated with desire for control in video games. In fact, results from the linear and correlation analyses suggested that there was a negative relationship between desire for control in everyday life and desire for control in video games.

## Limitations and Future Research

Note that this study made an assumption regarding personality. There are some who argue that personality is something that one can change. While this may be true over a longer period of time, this study assumed that one cannot make drastic changes in personality at will. In other words, this study made the assumption that personality was relatively static in the short-term and considered the variable of personality to be exogenous. Hence, it was assumed that the independent variable of personality did not affect the error term in the regression models.

The first limitation of my study is that it only measured the effects of two aspects of culture on desire for control in video games. This study attempted to determine if 1) there was a cultural difference in the level of control desired in video games and 2) if this difference was related to differences in Japanese and American cultures. It did so by using items related to Geert Hofstede's Uncertainty Avoidance Index,<sup>67</sup> which measured the rule and instruction orientation and general stress level of respondents. It also used the items from Jerry Burger's Desire for Control scale<sup>68</sup> to measure the degree respondents wanted control over their everyday lives. While both of these scales provided meaningful results, there are a number of other factors that may have helped further our understanding.

First, acquiring respondents' motivation for playing video games might have been helpful in explaining the results of the correlation analysis. Had this study measured respondents' motivation in playing video games, it may have been able to

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<sup>67</sup> Hofstede, *Culture's Consequences*.

<sup>68</sup> Burger, *Desire for Control*.

better explain why desire for control in one's everyday life was negatively correlated with desire for control in video games. A paper by Katelyn McKenna and John Bargh discusses the implications of the Internet for personality and social psychology.<sup>69</sup> In their article, McKenna and Bargh suggest that "the ability to carve out different identities or roles may be particularly important for those who...have few self-defining roles and for those who feel that important aspects of their identity are constrained in the relationships they maintain in the non-Internet world."<sup>70</sup> A similar mechanism may be at work when one plays video games. This study found that Americans wanted relatively more control in their everyday lives than the Japanese but relatively less control in their video games. The opposite was true for the Japanese. It may be the case that video games provide Japanese and American gamers with the opportunity to express self-defining roles that are otherwise limited or unavailable to them in their real lives. It may also be interesting to investigate if those who play video games frequently (i.e. high-usage users) feel relatively constrained in their real-world relationships compared to those who play video games relatively less frequently (i.e. low-usage users). These issues require additional tools to measure the motivation for playing video games, respondents' real-world relationships, as well as their concept of self identity.

It may have also been worthwhile to measure respondents' perception of software's country of origin. It is possible that American and Japanese gamers begin

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<sup>69</sup> John A. Bargh, and Katelyn Y.A. McKenna, "Plan 9 From Cyberspace: The Implications of the Internet for Personality and Social Psychology," *Personality and Social Psychology Review* 4, no.1 (2000), <http://psr.sagepub.com/cgi/content/abstract/4/1/57>.

<sup>70</sup> *Ibid.*, 63.

to formulate their opinions of games based on the game's country of origin. For example, an American gamer, without knowing the content or functionality offered by the game, may begin to formulate a negative (or favorable) opinion towards a game made by a Japanese company. This country-of-origin bias is seen in various industries. For example, Eileen Brooks found that bottles of wine with "Product of Italy" on the label could charge a higher premium in the United States than those that did not have this label.<sup>71</sup> While the country of origin may not be clearly written on video game boxes, the name of the publisher is often identified. This might help explain why many Japanese and American publishers are predominately successful in their domestic markets, but struggle to achieve the same level of success in the worldwide market.<sup>72</sup>

Second, future studies would also greatly benefit by conducting a structural model analysis. This would not only reveal the relationships between factors, as was provided by this study's correlation analysis, but doing so would also give a relatively in-depth explanation as to how these factors interact with one another. This is mainly attributed to its ability to test theories of causality between factors. The correlation analysis for this study, for example, found that the Desire for Leadership and Control in Everyday Life factor was negatively related to the Desire for Control in Video Games factor. Unfortunately, I am unable to make causal statements regarding how one factor impacts another factor. Structural equation modeling would allow me to

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<sup>71</sup> Eileen Brooks, "Products and Prejudice: measuring Country-of-Origin Bias in U.S. Wine Imports," UC Santa Cruz Center for International Economics Working Paper No. 01-10 (June 2003), available at SSRN <http://ssrn.com/abstract=421800> or DOI: 10.2139/ssrn.421800.

<sup>72</sup> Nintendo serves as an exception to this rule. Its software titles tend to perform well in both domestic and international markets.

determine if Desire for Leadership and Control in Everyday Life causes Desire for Control in Video Games to decrease, or vice versa. Recall that the factor for uncertainty avoidance, Rule & Instruction Orientation, and the item for general stress level did not have a direct relationship with the Desire for Control in Video Games factor in my correlation analysis. Structural modeling analysis could also be used to determine if this factor and item are mediated through the Desire or Avoidance for Control and Leadership in Everyday Life factors. In other words, this method could be used to see if this factor and item have an indirect effect on the Desire for Control in Video Games factor.

Another limitation of this study was its inability to measure the level of non-response bias, since it was conducted over the Internet. Given the digital venue and the manner in which it was promoted, this survey was unable to gather data about those who decided not to participate in the survey. As a result, it is difficult to determine if the sample used was representative of both populations of video gamers or if the results only apply to a sub-group of the entire gaming population (namely those who chose to participate in the study). This may be less of a concern in the US, where internet access through personal computers is relatively widespread. In Japan, however, a large portion of the population accesses the internet through their cellular phones.<sup>73</sup> Taking an online survey like this one via cellular phone could be particularly laborious. It is possible that the Japanese who took this survey via

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<sup>73</sup> "Moshi Moshi," *On the Media* from NPR, KCUR Kansas City Public Radio (Kansas City, MO, January 30, 2009), transcript at <http://www.onthemedial.org/transcripts/2009/01/30/07> (Accessed on March 1, 2009).

personal computer are not representative of the Japanese video gamer population as a whole. This may or may not have had an effect on the types of Japanese individuals that were able to take this online survey.

This section has addressed some of this study's limitations as well as some of the intriguing issues that were discovered and might be addressed in future studies. Future studies would benefit from measuring and exploring the relationship between the motivation to play video games and the level of control desired in video games. Such a study might also benefit by measuring respondents' satisfaction with their real world relationships and concept of self identity, as these may affect what users search for in the games they play. This study has shown that American video gamers want relatively less control in their video games and relatively more control in their everyday lives than Japanese gamers. However, this study has a number of limitations that may make some suspicious of the validity of its results; most notably was its inability to identify and gather data on non-responders. Regardless, future analysis on this issue that successfully addresses these limitations will test the accuracy of this study's results.

## **Appendices**

### **Appendix 1**

#### **List of Internet Locations where this Survey was Advertized**

##### **1. Mixi (Japanese social networking site) Gaming Groups**

- A. レトロゲーム
- B. 大切な事は全てゲームから学んだ
- C. 次世代ゲーム機市場を考える会 ト
- D. ゲームのお仕事
- E. アドベンチャーゲーム
- F. シューティングゲームだ！
- G. 何度も同じゲームをプレイする！
- H. ゲームニュース

##### **2. Facebook (social networking site in English) gaming Groups**

- 1. When I was your age, we had to blow on the video games to make them work...
- 2. PC and Video Game Professionals
- 3. Absolutely.out.of.my.freaking.mind. addicted to video games
- 4. NES Video Game Retro Gaming

##### **3. 2Channel's "Video Game Salon" Forum**

##### **4. Gamespot Japan Forum**

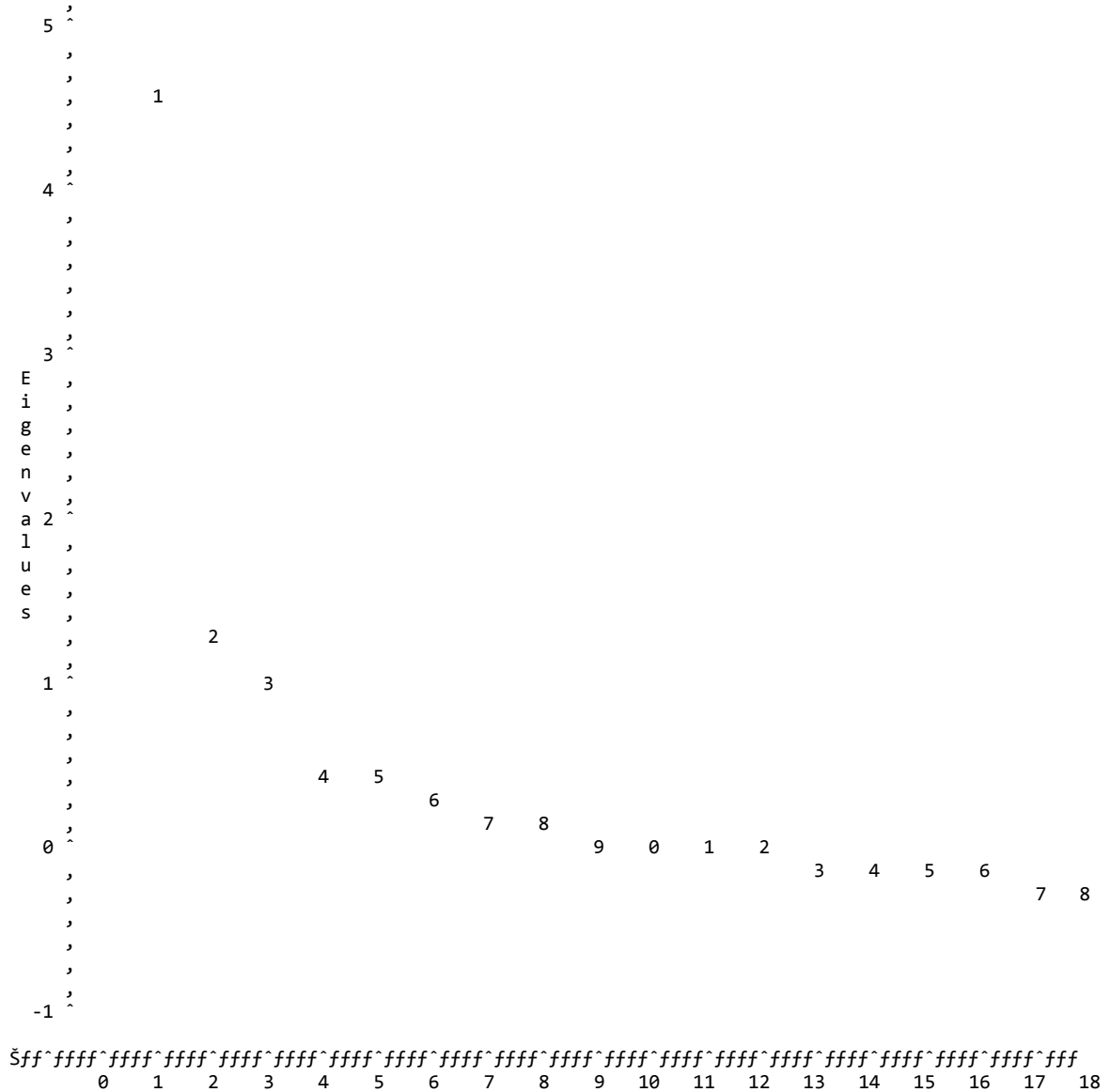
##### **5. Video game chartz's Forum**



## Appendix 2

### Factor Analysis Results for Video Game Control Scale

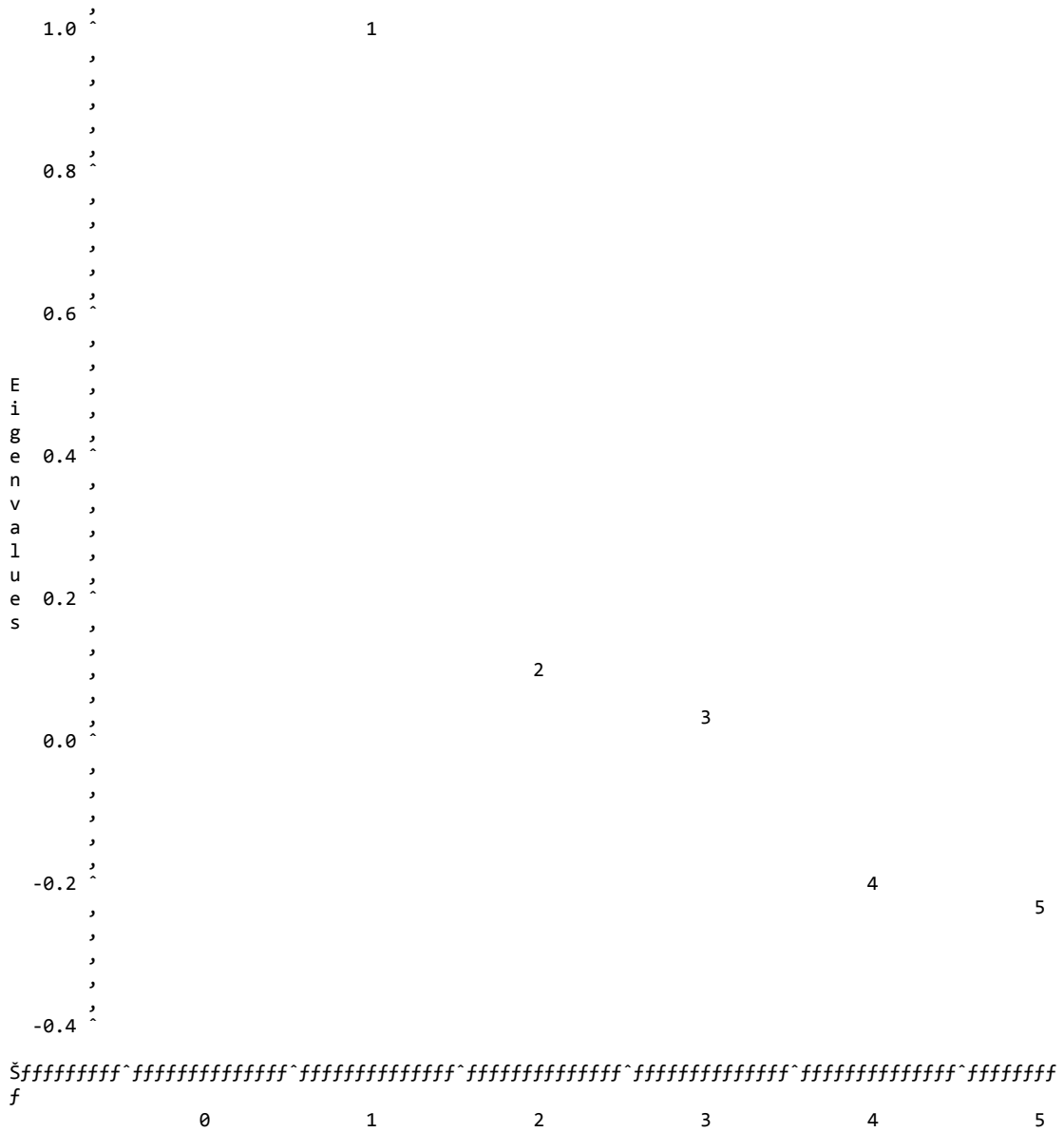
Scree Plot of Eigenvalues



### Appendix 3

Uncertainty Avoidance scale factor analysis  
The FACTOR Procedure  
Initial Factor Method: Principal Factors

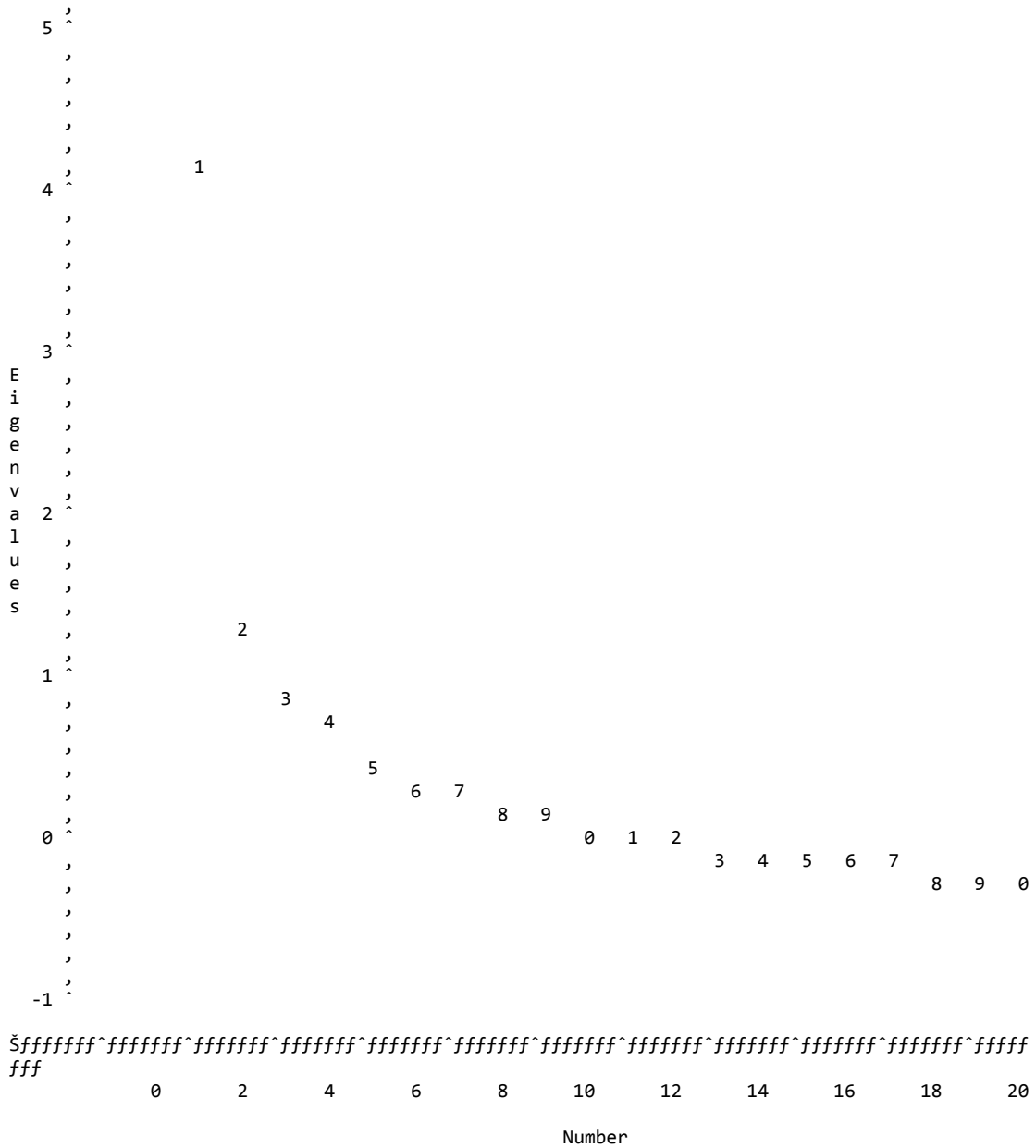
Scree Plot of Eigenvalues



## Appendix 4

Desire for Control scale factor analysis  
The FACTOR Procedure  
Initial Factor Method: Principal Factors

Scree Plot of Eigenvalues



## **Appendix 5**

### **English Survey Used in this Study**

#### **Section Instructions**

This section will ask you some general questions about yourself. (4 questions)

1. Culturally, what country do you most associate with?  
(list of all internationally recognized countries)
2. Please indicate the country where you have citizenship.  
(list of all internationally recognized countries)
3. On average, how many hours a week do you play video games?  
A. Never B. 1-4 hours C. 5-8 hours D. more than 8 hours
4. Please select the year that you were born.

#### **Section Instructions**

The following statements are about video games. Please show how much you agree or disagree with each statement. Remember, there are no right or wrong answers. (18 questions)

1. I enjoy being in control of my character's movement.  
A. Strongly Disagree B. Disagree C. Neutral D. Agree E. Strongly Agree
2. I want to be in control of what my character says.  
A. Strongly Disagree B. Disagree C. Neutral D. Agree E. Strongly Agree
3. I enjoy being able to affect the character's relationships with my actions.  
A. Strongly Disagree B. Disagree C. Neutral D. Agree E. Strongly Agree
4. Experimenting with the character design options is fun.  
A. Strongly Disagree B. Disagree C. Neutral D. Agree E. Strongly Agree
5. I would rather use a pre-created character than create one myself.  
A. Strongly Disagree B. Disagree C. Neutral D. Agree E. Strongly Agree
6. I enjoy creating my own characters.  
A. Strongly Disagree B. Disagree C. Neutral D. Agree E. Strongly Agree
7. I like having a choice in the type of character that I use.  
A. Strongly Disagree B. Disagree C. Neutral D. Agree E. Strongly Agree
8. I prefer games where I can alter the perspective (1st or 3rd person) 360 degrees.  
A. Strongly Disagree B. Disagree C. Neutral D. Agree E. Strongly Agree
9. I want to control the perspective even if I don't get the "best" one.  
A. Strongly Disagree B. Disagree C. Neutral D. Agree E. Strongly Agree

10. The game developer usually knows the view that I would enjoy the most.  
A. Strongly Disagree B. Disagree C. Neutral D. Agree E. Strongly Agree
11. I find numerous story options paralyzing.  
A. Strongly Disagree B. Disagree C. Neutral D. Agree E. Strongly Agree
12. A video game is more entertaining when I am able to affect the storyline with my actions.  
A. Strongly Disagree B. Disagree C. Neutral D. Agree E. Strongly Agree
13. I do not care to affect the storyline.  
A. Strongly Disagree B. Disagree C. Neutral D. Agree E. Strongly Agree
14. A game is most entertaining when it allows me to make as many choices as possible.  
A. Strongly Disagree B. Disagree C. Neutral D. Agree E. Strongly Agree
15. Making many decisions is troublesome and annoying.  
A. Strongly Disagree B. Disagree C. Neutral D. Agree E. Strongly Agree
16. I prefer to avoid situations where a character has to tell me what it is I should be doing.  
A. Strongly Disagree B. Disagree C. Neutral D. Agree E. Strongly Agree
17. There are many situations where I would prefer only one choice rather than having to make a decision.  
A. Strongly Disagree B. Disagree C. Neutral D. Agree E. Strongly Agree
18. I prefer games where I have a lot of control over what I do and when I do it.  
A. Strongly Disagree B. Disagree C. Neutral D. Agree E. Strongly Agree

**Section Instructions**

Please indicate how much you agree or disagree with each statement below. Remember, there are no right or wrong answers. (5 questions)

1. How often do you feel nervous or tense at work or school?  
A. I never feel this way B. Seldom C. Sometimes D. Usually E. I always feel this way
2. Company rules should not be broken--even when the employee thinks it is in the company's best interest.  
A. Strongly Disagree B. Disagree C. Neutral D. Agree E. Strongly Agree
3. It is important to closely follow instructions and procedures.  
A. Strongly Disagree B. Disagree C. Neutral D. Agree E. Strongly Agree

4. Rules and regulations are important because they inform me of what is expected of me.

A. Strongly Disagree B. Disagree C. Neutral D. Agree E. Strongly Agree

5. It is important to have instructions spelled out in detail so that I always know what I am expected to do.

A. Strongly Disagree B. Disagree C. Neutral D. Agree E. Strongly Agree

### Section Instructions

Below you will find a series of statements.

Please read each statement carefully and respond to it by expressing the extent to which you believe the statement applies to you. Remember, there are no right or wrong answers. For all items, a response from 1 to 7 is required. Use the number that best reflects your belief when the scale is defined as follows: (20 Questions)

1 = Does not apply to me at all;

2 = Usually does not apply to me;

3 = Most often, the statement does not apply;

4 = I am unsure, or it applies to me about half the time;

5 = Applies more often than not;

6 = Usually applies to me;

7 = Always applies to me.

1. I prefer a job where instructions have a lot of control over what I do and when I do it.

1            2            3            4            5            6            7

2. I enjoy political participation because I want to have as much of a say in running government as possible.

1            2            3            4            5            6            7

3. I try to avoid situations where someone else tells me what to do.

1            2            3            4            5            6            7

4. I would prefer to be a leader than a follower.

1            2            3            4            5            6            7

5. I enjoy being able to influence the actions of others.

1            2            3            4            5            6            7

6. I am careful to check everything on an automobile before I leave for a long trip.

1            2            3            4            5            6            7

7. Others usually know what is best for me.

1            2            3            4            5            6            7

8. I enjoy making my own decisions.

1            2            3            4            5            6            7

9. I enjoy having control over my own destiny.

1            2            3            4            5            6            7

10. I would rather someone else take over the leadership role when I'm involved in a group project.

1            2            3            4            5            6            7

11. I consider myself to be generally more capable of handling situations than others around me.  
1            2            3            4            5            6            7
12. I'd rather run my own business and make my own mistakes than listen to someone else's orders.  
1            2            3            4            5            6            7
13. I like to get a good idea of what a job is all about before I begin.  
1            2            3            4            5            6            7
14. When I see a problem, I prefer to do something about it rather than sit by and let it continue.  
1            2            3            4            5            6            7
15. When it comes to orders, I would rather give them than receive them.  
1            2            3            4            5            6            7
16. I wish I could push many of life's daily decisions off on someone else.  
1            2            3            4            5            6            7
17. When driving, I try to avoid putting myself in a situation where I could be hurt by another person's mistake.  
1            2            3            4            5            6            7
18. I prefer to avoid situations where someone else has to tell me what it is I should be doing.  
1            2            3            4            5            6            7
19. There are many situations in which I would prefer only one choice rather than having to make a decision.  
1            2            3            4            5            6            7
20. I like to wait and see if someone else is going to solve a problem so that I don't have to be bothered by it.  
1            2            3            4            5            6            7

## Appendix 6

### Japanese Survey Used in this Study

#### セクション1

以下の自分についての質問にお答え下さい。

(4問)

1. 文化的に自分が属する民族をお選びください。
2. 自分の国籍をお選び下さい。
3. 平均的に、一週間に何時間ぐらい家庭用ゲームやパソコンのゲームをしますか。  
A. 全然しない B. 1-4 時間 C. 5-8 時間 D. 8 時間以上。
4. 自分の生まれ年をお選び下さい。

#### セクション2

以下のゲームソフトについての質問にお答え下さい。いずれの質問にも正しい答えと言うものはありませんので直感的に選んでください。(18問)

1. 自分のキャラクターをコントロールするのが好きだ

1. I enjoy being in control of my character's movement.

A. 全く同意できない B. 同意できない C. どちらともいえない D. 同意できる E. 非常に同意できる

2. 自分のキャラクターの発言（セリフ）をコントロールしたい。

2. I want to be in control of what my character says.

A. 全く同意できない B. 同意できない C. どちらともいえない D. 同意できる E. 非常に同意できる

3. 自分がとったアクションによってキャラクター達との関係に影響を及ぼすことができるのが好きだ。

3. I enjoy being able to affect the character's relationships with my actions.

A. 全く同意できない B. 同意できない C. どちらともいえない D. 同意できる E. 非常に同意できる

4. キャラクターをデザインできる機能は楽しい。

4. Experimenting with the character design options is fun.

A. 全く同意できない B. 同意できない C. どちらともいえない D. 同意できる E. 非常に同意できる

5. 自分でキャラクターを作るのではなく、既に作られているキャラクターを使うことの方が  
多い（又は好きだ）。

5. I would rather use a pre-created character than create one myself.

A. 全く同意できない B. 同意できない C. どちらともいえない D. 同意できる E. 非常に同意できる

6. 自分だけのキャラクターを作るのが好きだ。

6. I enjoy creating my own characters.

A. 全く同意できない B. 同意できない C. どちらともいえない D. 同意できる E. 非常に同意できる

7. 自分が使うキャラクターにキャラクターのタイプの選択肢があるのが好きだ。

7. I like having a choice in the type of character that I use.

A. 全く同意できない B. 同意できない C. どちらともいえない D. 同意できる E. 非常に同意できる

8. ゲーム中にキャラクターの視点（カメラアングル）を 360 度自在（一人称視点、又は三人称視点）に変えられるのが好きだ。

8. I prefer games where I can alter the perspective (1st or 3rd person) 360 degrees.

A. 全く同意できない B. 同意できない C. どちらともいえない D. 同意できる E. 非常に同意できる

9. 例え、それが一番いい視点ではなくても、自分で視点（カメラアングル）をコントロール  
したい。

9. I want to control the perspective even if I don't get the "best" one.

A. 全く同意できない B. 同意できない C. どちらともいえない D. 同意できる E. 非常に同意できる

10. ゲームソフトの製作者はたいてい、自分が楽しめる視点（眺め）を知っている。

10. The game developer usually knows the view that I would enjoy the most.

A. 全く同意できない B. 同意できない C. どちらともいえない D. 同意できる E. 非常に同意できる

11. ストーリー分岐が多くなると、どうしたらいいか分からなくなる。

11. I find numerous story options paralyzing.

A. 全く同意できない B. 同意できない C. どちらともいえない D. 同意できる E. 非常に同意できる



12.自分のとるアクションによってストーリーラインを変えられるゲームソフトはより楽しい。

12. A video game is more entertaining when I am able to affect the storyline with my actions.

A. 全く同意できない B. 同意できない C. どちらともいえない D. 同意できる E. 非常に同意できる

13.ストーリーラインを自分で変えられるかは、気にしない。

13. I do not care to affect the storyline.

A. 全く同意できない B. 同意できない C. どちらともいえない D. 同意できる E. 非常に同意できる

14. 自分があらゆる点において、できるだけたくさんの選択ができるゲームソフトは楽しい。

14. A game is most entertaining when it allows me to make as many choices as possible.

A. 全く同意できない B. 同意できない C. どちらともいえない D. 同意できる E. 非常に同意できる

15.たくさんの選択を強いられるのは、面倒くさく、いらいらする。

15. Making many decisions is troublesome and annoying.

A. 全く同意できない B. 同意できない C. どちらともいえない D. 同意できる E. 非常に同意できる

16.キャラクターがプレイヤー（自分）に何かをするよう命じるシチュエーションを避けがちだ。

16. I prefer to avoid situations where a character has to tell me what it is I should be doing.

A. 全く同意できない B. 同意できない C. どちらともいえない D. 同意できる E. 非常に同意できる

17.たくさんあるより、1つだけ選択肢があればいいと思うことが多い。

17. There are many situations where I would prefer only one choice rather than having to make a decision.

A. 全く同意できない B. 同意できない C. どちらともいえない D. 同意できる E. 非常に同意できる

18.ゲーム中に何かをする時、何をするか、いつするかを自分で決められるゲームソフトが好きだ。

18. I prefer games where I have a lot of control over what I do and when I do it.

A. 全く同意できない B. 同意できない C. どちらともいえない D. 同意できる E. 非常に同意できる

### セクション 3

以下の質問にお答え下さい。 いずれの質問にも正しい答えと言うものではありませんので直感的に選んでください。(5問)

1. 仕事や学業によってどのぐらいの頻度で緊張したり、ストレスがたまったりしますか?

1. How often do you feel nervous or tense at work or school?

A. 全く同意できない B. 同意できない C. どちらともいえない D. 同意できる E. 非常に同意できる

2. 会社員が会社の利益になると考えてある行為をしようとした場合でも、それが会社の規則に反する行為ならするべきではない。

2. Company rules should not be broken--even when the employee thinks it is in the company's best interest.

A. 全く同意できない B. 同意できない C. どちらともいえない D. 同意できる E. 非常に同意できる

3. 指示、手順にしっかり従うのは大切だ。

3. It is important to closely follow instructions and procedures.

A. 全く同意できない B. 同意できない C. どちらともいえない D. 同意できる E. 非常に同意できる

4. 規則、規範は自分が何をすべきかの情報を提供するものなので大切である。

4. Rules and regulations are important because they inform me of what is expected of me.

A. 全く同意できない B. 同意できない C. どちらともいえない D. 同意できる E. 非常に同意できる

5. 何をすべきか知るために指示が詳しく記述されていることは大事だ。

5. It is important to have instructions spelled out in detail so that I always know what I am expected to do.

A. 全く同意できない B. 同意できない C. どちらともいえない D. 同意できる E. 非常に同意できる

#### セクション4

以下の質問を注意深く読み、質問の内容が自分に当てはまるかどうか（1. 全然当てはまらない、7. いつも当てはまる）のスケールから答えをお選びください  
(20問)

1 = 全然当てはまらない;

2 = たいてい当てはまらない;

3 = どちらともいえないが、どちらかと言うと当てはまらない;

4 = どちらともいえない;

5 = どちらともいえないがどちらかと言うと当てはまる;

6 = たいてい当てはまる;

7 = いつも当てはまる.

1. 何をすべきかいつすべきか自分で判断し、支配力のある指示を与えられる仕事が好きだ。

1. I prefer a job where instructions have a lot of control over what I do and when I do it.

1                  2                  3                  4                  5                  6                  7

2. 現在の政府にできるだけ自分の考えを提案したいから、政治参加が好きだ。

2. I enjoy political participation because I want to have as much of a say in running government as possible.

1                  2                  3                  4                  5                  6                  7

3. 誰かに指示されることをできるだけ避けようとする。

3. I try to avoid situations where someone else tells me what to do.

1                  2                  3                  4                  5                  6                  7

4. 誰かに指導されたことをするより、自分が指導するのが好きだ。

4. I would prefer to be a leader than a follower.

1                  2                  3                  4                  5                  6                  7

5. 他の人の行動に影響を与えることが好きだ。

5. I enjoy being able to influence the actions of others.

1                  2                  3                  4                  5                  6                  7

6. 長期自動車旅行に出かける前に、自動車を注意深く点検する。

6. I am careful to check everything on an automobile before I leave for a long trip.

1                  2                  3                  4                  5                  6                  7

7. 自分に何が正しいかを他人の方が理解している。

7. Others usually know what is best for me.

1 2 3 4 5 6 7

8. 自分で決断するのが好きだ。

8. I enjoy making my own decisions.

1 2 3 4 5 6 7

9. 自分の運命を自分でコントロールできるのは楽しい。

9. I enjoy having control over my own destiny.

1 2 3 4 5 6 7

10. グループでプロジェクトをするとき、自分以外の誰かがリーダーになってくれるとうれしい。

10. I would rather someone else take over the leadership role when I'm involved in a group project.

1 2 3 4 5 6 7

11. 周りの人に比べて自分は問題や事態をより上手く処理することができると思う。

11. I consider myself to be generally more capable of handling situations than others around me.

1 2 3 4 5 6 7

12. 誰かに命令されるより、自分のビジネスを経営して失敗する方がましだ。

12. I'd rather run my own business and make my own mistakes than listen to someone else's orders.

1 2 3 4 5 6 7

13. 仕事をする前にその仕事について詳しく理解したい。

13. I like to get a good idea of what a job is all about before I begin.

1 2 3 4 5 6 7

14. 間違いをみつけたとき、何もせずにその状況が続くより、何かをしたい。

14. When I see a problem, I prefer to do something about it rather than sit by and let it continue.

1 2 3 4 5 6 7

15. 命令を受けるより、命ずる方がいい。

15. When it comes to orders, I would rather give them than receive them.

1 2 3 4 5 6 7

16. 日常生活にしいられるたくさんの決断を自分以外の誰かがしてくれればいいと思う。

16. I wish I could push many of life's daily decisions off on someone else.

1 2 3 4 5 6 7

17. 運転するとき、誰かの誤りで自分が傷つくのを避けようとする。

17. When driving, I try to avoid putting myself in a situation where I could be hurt by another person's mistake.

1 2 3 4 5 6 7

18. 自分が何をすべきか他人に指示されることをなるべく避けたい。

18. I prefer to avoid situations where someone else has to tell me what it is I should be doing.

1 2 3 4 5 6 7

19. たくさん選択肢があり自分が決断を下さなくてはならないより、選択肢が1つしかない方がよいと思うときが多くある。

19. There are many situations in which I would prefer only one choice rather than having to make a decision.

1            2            3            4            5            6            7

20. 何か問題がおきたとき、誰かがその問題を解決してくれるのを待つ傾向がある。

20. I like to wait and see if someone else is going to solve a problem so that I don't have to be bothered by it.

1            2            3            4            5            6            7

## **Bibliography**

Anderson, Craig and Karen Dill. "Video Games and Aggressive Thoughts, Feelings, and Behavior in the Laboratory and in Life." *Journal of Personality and Social Psychology* (2000): 772-790.

Anonymous. personal interview with author, 3 February 2008.

Bargh, John A., and Katelyn Y.A. McKenna. "Plan 9 From Cyberspace: The Implications of the Internet for Personality and Social Psychology." *Personality and Social Psychology Review* 4, no.1 (2000), <http://psr.sagepub.com/cgi/content/abstract/4/1/57>.

Bennet, JC. "The Difference." October 19, 2006.  
<http://japanmanship.blogspot.com/2006/10/difference.html>.

Brooks, Eileen L.. "Products and Prejudice: Measuring Country-of-Origin Bias in U.S. Wine Imports(June 2003)." UC Santa Cruz Center for International Economics Working Paper No. 03-10. Available at SSRN: <http://ssrn.com/abstract=421800> or DOI: 10.2139/ssrn.421800.

Burger, Jerry M.. *Desire for Control: Personality, Social, and Clinical Perspectives*. New York: Plenum Press, 1992.

Burger, Jerry M.. "The Desirability of Control." *Motivation and Emotion* (1979): 381-393.

Eickhorst, E. "Game Centers: Game centers: A historical and Cultural Analysis of Japan's Video Amusement Establishments." Master's Thesis, University of Kansas, 2006.

Entertainment Software Association. <http://www.theesa.com/facts/salesandgenre.asp> (accessed November 14, 2008).

Entertainment Software Association, "Video Games in the 21st Century: Economic Contributions of the U.S. Entertainment Software Industry." <http://www.theesa.com/facts/econdata.asp> (accessed November 14, 2008).

E-stat, "Population of 15 years old or more by labor force status, agri-/non-agriculture, status in employment (employee in non-agricultural industries by number of persons engaged in enterprise), age," <http://www.e-stat.go.jp/SG1/estat/ListE.do?lid=000001018314> (accessed on November 26, 2008).

Glassner, Andrew. *Interactive Storytelling: Techniques for 21st Century Fiction*. Canada: A K Peters, 2004.

Hand, Martin and Karenza Moore. "Community, Identity and Digital Games." In *Understanding Digital Games*, edited by Jason Rutter and Jo Bryce. London: Sage Publications, 2006.

Hofstede, Geert. *Culture's Consequences*. London: Sage Publications, 2001.

Ji, Li-Jun, Kaiping Peng and Richard Nisbett. "Culture, Control, and Perception of Relationships in the Environment." *Journal of Personality and Social Psychology* (2000): 943-955.

Kageyama, Yuri. "Japanese Video Game Sales Rose to Record High in 2007," *International Herald Tribune*, January 9, 2008, <http://www.iht.com/articles/2008/01/09/technology/game.php> (accessed 11/16/2008).

Kalata, Kurt. "Clash of the Cultures." January 18, 2007. <http://www.1up.com/do/feature?cId=3155815> (accessed November 16, 2008).

Kent, Steven. *The Ultimate History of Video Games*. New York: Three Rivers Press, 2001.

Kohler, Chris. *Power-Up: How Japanese Video Games Gave the World and Extra Life*. Indianapolis: Brady Games, 2005.

Lewis, George. "Researchers tout positive effects of video games: gamers get high marks for problem-solving, careful risk-taking." May 19, 2005. <http://www.msnbc.msn.com/id/7912743/> (accessed November 16, 2008).

Livingston, Sonia. *Young People and New Media: Childhood and the Changing Media Environment*. London: Sage, 2002.

Mateas, Michael. "A Preliminary Poetics for Interactive Drama and Games." In *FirstPerson: New Media as Story, Performance, and Game*, edited by Noah Wardrip-Fruin and Pat Harrigan, 19-32. Cambridge: MIT Press, 2004.

"Moshi Moshi." On the Media from NPR. KCUR Kansas City Public Radio. Kansas City, MO: KCUR, January 30, 2009.

Murray, Janet. "From Game-Story to Cyberdrama." in *First Person: New Media as Story, Performance, and Game*, edited by Noah Wardrip-Fruin and Pat Harrigan, 2-11. Cambridge: MIT Press, 2006).

Ngai, A. "Cultural Influences on Video Games: Players' Preferences in Narrative and Game-play." Master's Thesis, University of Waterloo, 2005.

Reich, John and Alex Zautra. "Experimental and Measurement Approaches to Internal Control in At-Risk Older Adults." *Journal of Social Issues* (1991): 143-158.

Reuters, "Video-game sales Overtaking Music." June 26, 2007, <http://articles.moneycentral.msn.com/Investing/Extra/VideoGameSalesOvertakingMusic.aspx> (accessed November 14, 2008).

Richard, Birgit and Zaremba, Jutta. "Gaming with GRRLS: Looking for Sheroes in Computer Games." In *Handbook of Computer Game Studies*, edited by Joost Raessens and Jeffrey Goldstein, 283-299. Cambridge: MIT Press, 2005.

Ross, A. Bandura, D., and S.A. Ross. "Transmission of Aggression through Imitation of Aggressive Models." *Journal of Abnormal Psychology* 63.3 (1961): 575-582.

Sheff, David, *Game Over: How Nintendo Conquered the World*. New York: Vintage Books, 1993.

Tews, Rebecca R.. "Archetypes on Acid" in *The Medium of the Video Game*, edited by Mark J. P. Wolf, 169-181. Austin: University of Texas Press, 2001.

Vgchartz.com. <http://vgchartz.com/> (accessed November 14, 2008).